Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME X.] NEW-YORK NOVEMBER 4, 1854. [NUMBER 8.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At 128 Fulton Street, N. Y. (Sun Buildings,)
BY MUNN & COMPANY.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Agents.

H. Taylor, Baltimore, Md. | Dexter & Bro., New York.
Federhen & Co., Boston. | B. Dawson, Montreal, C. E.
Stokes & Bro., Philadelphia. | M. Boullemet, Mobile, Ala.
G. B. Mitchel, Savannah, Ga. | E. W. Wiley, New Orleans.
S. G. Courtenay, Charleston. | E. G. Fuller, Halifax, N. S.
D.M. Dewey, Rochester, N.Y. | S. W. Pease, Cincinnati, O.
Avery Bellford & Co., London | M. M. Gardissal & Co., Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS—$2 a-year :—$1 in advance and the remainder in six months.

PORTER'S STONE DRESSING MACHINE.

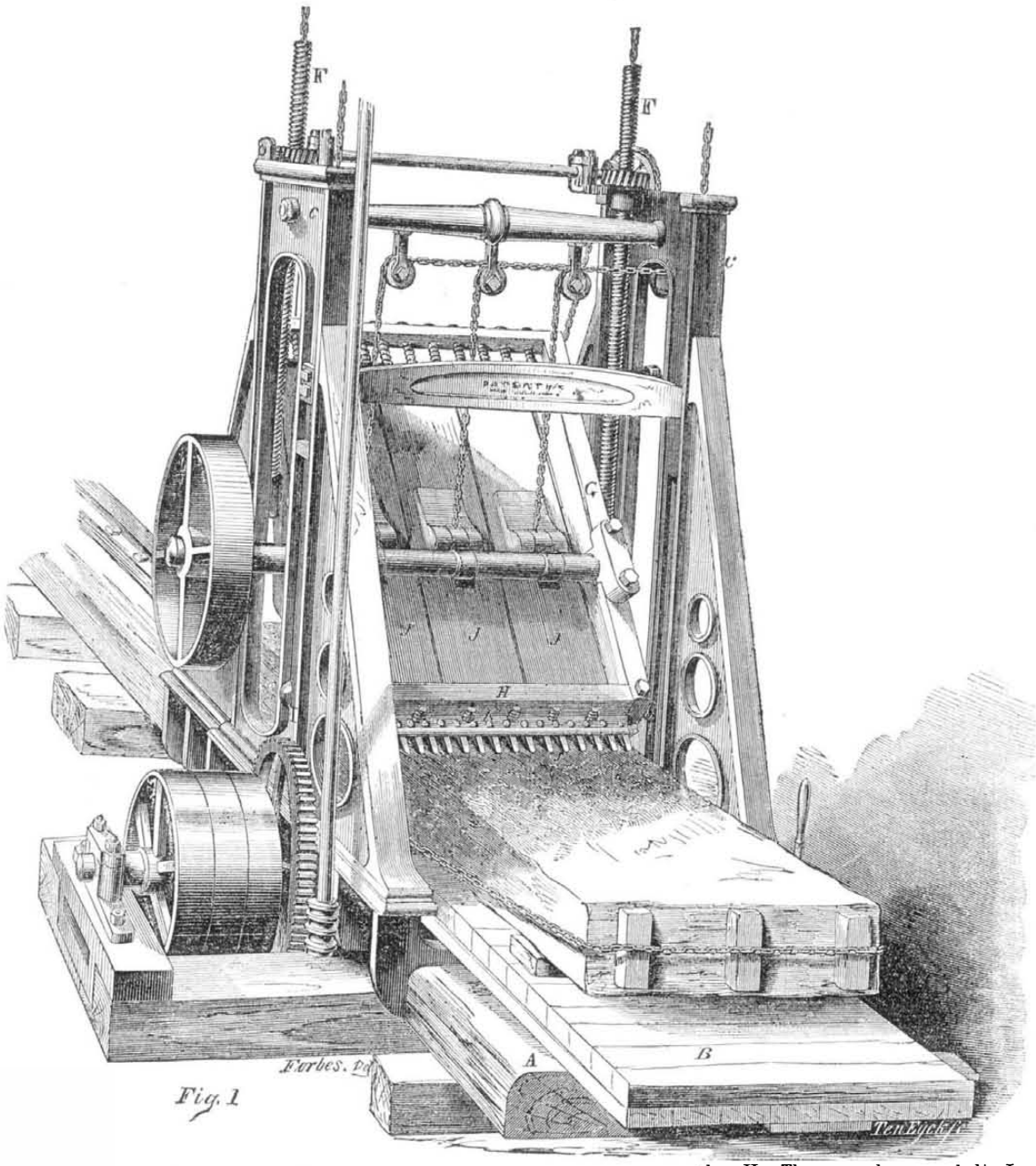


Fig. 1

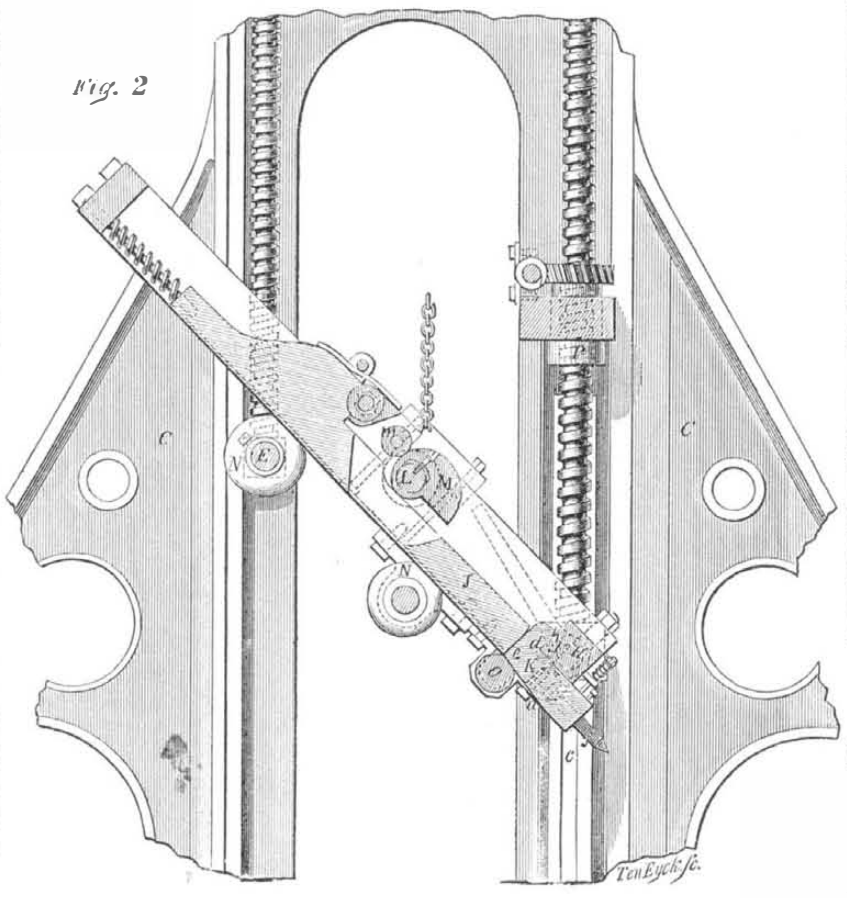


Fig. 2

Stone Dressing Machine.

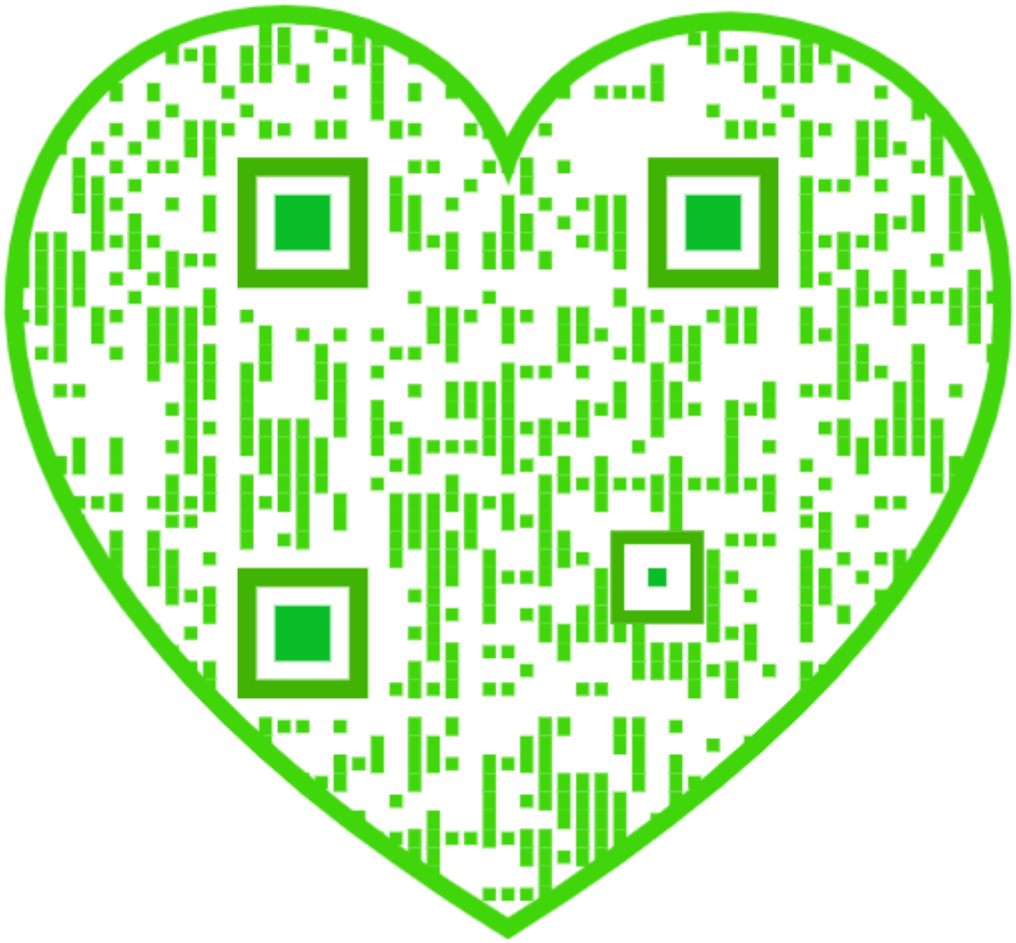
The annexed engravings are views of an improved stone dressing machine, for which a patent was granted to C. T. Porter, of this city, on the 8th of last August, but which, since then, has been improved as here represented, figure 1 being a perspective, and fig. 2 a longitudinal vertical section, through the hammer and tool stock.

A is the bed framing, and B is the stone carriage, with a block of stone upon it. C is the side vertical framing. There are three hammers, J J J, composed of broad blocks of metal, set in a frame, G, and supported on rollers, N N, which are partially rotated as the hammers move up and down. These hammers have a tendency to press against the head of the cutter or tool stock, by the tension of springs at their upper ends abutting against the back part of the frame, so that when the hammers are raised by the rotating cams, M, on the shaft, L, fig. 2, the tension of the springs force them, (the hammers) when lifted, against the head of the tool stock, and thus dress the face of the stone. The cams that operate the hammers act against hinged rollers *m*, in the upper face of the hammers; these can be raised up by chains, so as to stop the cutting action, and allow the main shaft to rotate continually. *f f* are the tools or cutters; they can be made with double points attached to one shank, or single chisels.—They are inserted in sockets in the tool stock, K, and fastened with screws. The tool stock is divided into as many parts as there are hammers, so that the force of the blows will be uniformly distributed during a revolution of the hammer shaft. The tool stock, K, is indented or formed with a shoulder, *d*, near its head, *e*, and it is hung upon the rest bar, H, which is firmly secured with its journals in the sides of the frame, C C. O is another bar under the tool stock, for supporting it upwards. There are pins with coiled springs inserted into the front end of the tool holder. As the stone is fed forward on its bed, B, the tendency of its action is to carry the points of the tools backwards. The springs on the front end of the tool stock, and the manner the head of the tool stock is hung on the rest bar, H, while allowing a slight motion to the tools, still holds them firmly to their work, and the hammers drive them home, chipping off the rough stone surface by the same motion precisely that is given to the tool in the hands of a stone cutter.

The angle of the tools can be varied at pleasure, by elevating or depressing the back end of the hammer frame by the screws, F F, the heads of which embrace the journals, E, of the rollers, N. By turning the nuts at the top, these screws are drawn up, and thereby the cutting angle of the tools is made more acute; by depressing these rollers, the cutting angle is rendered more obtuse. The tool stock frame being supported on the rest bar, H, can also be raised, to make the tools take deep and shallow cuts, and for working stones of various thicknesses. The lower ends of the front screws are made like those at E, and embrace the journals of the rest bar, H. There are also screw bolts, I, which pass through slots, *c*, from the outside of the frame, C C, and hold these journals firmly in their places. By unscrewing these bolts and turning the nuts above the bosses, P, (all the screws are turned by gearing, not by hand) the tool and hammer frame is raised to any hight desired. The long vertical shaft with the worm gear on its foot, gears into the cog-wheel on the shaft which feeds the stone bed, by a pinion on it gearing into a rack on the under side of the stone bed. The pulleys on the stone bed feed shaft, are for running back the stone rapidly after it is cut over. This machine is very simple, and when well constructed, not liable to get out of order. One that will cut a stone three feet wide, can be driven by an engine of two horse power, and will cut as much plain surface in one day as fifty men. With proper tools, it can also cut straight moldings, and produce much finer surfaces than is commonly done by hand work. It can cut brown stone rapidly, and we have seen it cut a very hard block of Vermont marble with rapidity and precision.—As the force of the blow of the hammers can be varied, the machine can be made to cut very delicate work, as well as that which is more coarse; and, according to the action of the tools, it does not bruise the surface of the stone, a quality which is essentially necessary for cutting stone safely and successfully.

More information may be obtained by ap-

© 1854 SCIENTIFIC AMERICAN, INC.



plication to the proprietors of the patent, Messrs. Capwell and Porter, this City.

On Colors in Decoration.

The New York *Daily Times* of Monday last week furnishes us with the above text; the London *Times* of the 29th September, having furnished it with the topic by a review of M. Chevreule's French work on the harmony of colors. We have not read the article in the London *Times*, but its namesake here does not discuss the subject intelligently; it exhibits a want of scientific knowledge on the subject. It says:

"The ray of light, when the prism decomposes it, shows six distinct colors, but these are like any six of the nine digits that may be so run together, transposed and relatively constructed that hundreds of different effects and values are produced. Men who do our paintings seem to think that if red suits our taste and blue suits our taste also, if both are presented we shall have no cause for complaint. But since the eye was constructed to see *white* light mostly, whatever other color is presented long, there is a desire for the complementary color, which with the prevailing color would make white light; and, out of whatever other color is present, the eye supplies itself with that complementary color. Red and green mixed make white light. Hence, placed near each other, the effect is pleasant, or, divorced entirely, it is painful."

Here it is asserted that there are six distinct colors in a ray of white light; according to Sir Isaac Newton's theory there are seven—like the tones of music, but there are neither six nor seven—only three primary colors—yellow, blue, and red. By combining these three in various proportions or quantities, all the binary and trinary colors which adorn Flora's mantle are produced. Thus a green is composed of blue and yellow, and the expression "red and green mixed make white light" in the above paragraph is not correct; it should have been "red, blue, and yellow mixed make white light." It is a positive fact that these three colors form white light, and yet it is just as true that in the arts these three colors can be so compounded by a skilful practical chemist as to produce a black on a piece of broadcloth. The *Times* further says:

"Suppose we go to church, where the carpet is a brilliant red, and the hangings behind the pulpit are a scarlet red, and the linings of the seats and plush cushions of the sofas are of a purple red, our eyes, bent on discovering the complementary color, lighting on the trustees whose taste put so much red in the brush, will see them in spite of their gray and sombre hues, seeming to be green, and in the malicious misconstruction of the color of rays get some little comfort."

Here two scientific errors are committed. A scarlet is a binary color composed of yellow and red, and a purple is a binary color composed of blue and red—the latter predominating in quantity. The *Times*, however wrong in science, is correct in taste; the object of the editor being a commendable one, viz., to direct attention to the great want of knowledge displayed in general decoration, so far as it relates to the harmony of colors. It is very true that in some of our churches there is too much scarlet or red employed in decoration, but colors suitable for this purpose at one season of our changeable climate, and in harmony with the laws of taste, are not in tune with the laws of taste during a different season. Thus carpets in which red predominates, harmonizes with our feelings in winter, as it inspires us with a feeling of warmth, while carpets in which blue predominates, inspires us with a feeling of refreshing coolness, and are therefore the best adapted for decoration in the hot months of summer. In the decoration of churches and rooms, situation must also be consulted. Thus a room fronting the south, and into which a great flood of light is poured, may have its walls painted light blue and its carpets woven with blue and green predominating, but such colors would not harmonize with the laws of taste, if employed to decorate a room feebly lighted and fronting the north. Man is fearfully and wonderfully made, and the Great Creator has clothed sky, field, and forest, with robes of various hues for his pleasure and enjoyment, and all this out of nothing, for colors have no material existence; they are, as it were, an optical delusion. The eye of man is constructed to convey sensations of pleasure to the mind by the harmony of colors, and it should therefore be a subject of close study by every person, whether in the purchase of a calico dress, a carpet, or the painting of a house.

Franklin Institute.

This institution will hold its twenty-fourth annual exhibition next month, in Jaynes' Granite Building, Dock street, Philadelphia. It will be open for the reception of goods on the 10th of November, and for visitors from the 14th to the 2nd of December. It is intended to be an excellent Fair.

Those wishing to become exhibitors at the Fair of this old and respectable Institution may communicate by letter with John C. Cresson, Chairman of the Committee on Exhibition, or with William Hamilton, Actuary of the Institute.

All articles forwarded to the Institute will be carefully preserved while under their charge, and will be so placed as to command their fair share of the attention of the numerous visitors.

Working models of machinery that are sent to the rooms will be exhibited to the best advantage, and put into motion if desired, by a steam engine, under charge of a careful superintendent.

To insure a perfect impartiality, the Managers of the Institute, the Committee on Exhibitions, and all Firms or Partnerships in which a Manager or a member of the Committe on Exhibitions is interested, shall be excluded from competition; and the Judges shall be exclusively selected from persons practically acquainted with the several branches of manufactures on which they shall be appointed, but who are neither depositors of such manufactures themselves, nor in any way interested in the articles submitted to their examination.

Awards will not be confined to specimens prepared expressly for exhibition, but regard will be had to the prices and quality of the articles, compared to the same description of foreign goods, and with specimens presented at former exhibitions, and no premium shall be awarded for an article that has received one at any former exhibition of the Institute.

Three classes of premiums will be awarded; styled a first, a second, and a third class premium.

All articles deposited must be accompanied by an invoice, stating the name and residence of the maker and depositor.

Construction of Railroads and their Management

The rails used in Europe are made top and bottom alike, and are keyed in cast-iron chairs on each cross tie; by this means, when the upper surface of the rail becomes defective it can be turned upside down, and present a new surface equal to a new rail. Being keyed in every chair facilitates the operation of turning the rail and obviates the risk of splitting the cross ties by driving the spikes, for the chair once spiked to the tie remains until one or the other gives out. The American plan is to have a chair only at the joints and the rail only one running surface—the other broad and flat and held to the tie by spike heads, as when the rail becomes flawy or gets a bad spot in it, which often happens soon after it is laid down, it must be pulled up and thrown on the scrap heap. To do this the spikes that hold it must be drawn and new ones driven for the new rail; by repeating these operations the ties are soon split up and will no longer hold, and new ones must be substituted. By the European method the ties can be buried out of sight, and being covered are not so subject to decay as when their upper surfaces are exposed to the action of the weather—it also renders the track more firm and immovable—particularly in curves. Which plan is the best and most economical?

If one looks over the daily journals they will find all sorts of articles on railroads and their management or mismanagement, but never one on the abuse of the right of *experiment*. If facts could be arrived at, the amount expended each year by the different railroads, in useless experiments, and known to be worse than useless by those capable of judging, even before trial, it would astonish and open the eyes of many a victim of these speculations.

An individual who has the vanity to think himself a genius, and to prove his right to such an assertion imagines that he is about to banish smoke and dust from the railroads, or make steam perform double duty, (as in an instance of one of our city railroads,) by some means obtains the command of the whole road, and all are submitted to his orders, to the detriment of all other interests. After a few essays of the new scheme, something is found wanting—and after weeks and months of expectation on the one hand—of vexation and derangement on the part of the heads of departments on the other, it is found that the thing won't work, and it rests with the railroad, nothing but a certain amount of old iron, brass, &c., to dispose of. M.

New York, Oct. 9, 1854.

(For the Scientific American.)

Seed Ticks.

There is a prevalent error in regard to the origin of these little parasites, notwithstanding they are so well known, and have the art of making themselves so very interesting. It is generally believed that they have their origin—as their name implies—in the seed of a certain grass, but they only enter the outer hulls of those seed for shelter, or to lie in wait for the unwary traveller, for they are offspring of the large full gracon ticks, so frequently found on cattle and other animals, which, having attained full size, drop off and retire to some suitable place, and there deposit their eggs. It is remarkable, however, that they reverse the apparent order of nature in one particular, and that is by ejecting their eggs through their mouths, of which fact I was satisfied after repeated observations.

I tied them up separately in rags, at different times, for the purpose of ascertaining whether they generated or not, those confined in July and August commenced laying in five or six days, and continued at the rate of two or three hundred eggs per day, for two weeks or longer, and died in the fifth or sixth week after they were imprisoned. They had no nourishment, and probably do not require any after they cease to be parasitical. They are very prolific, producing from 4,000 to 6,000 eggs each, which hatch in three or four weeks, and to all appearance are veritable seed ticks. As they are exposed to many casualties, it is probable that not more than one in a thousand arrive at maturity, for in a rag of rather coarse shirting, ants small enough to enter through the meshes, did so in quest of the eggs. One year is doubtless the duration of their lives.

With our present knowledge of natural history, we may safely conclude that no insect or other animal has a vegetable origin, or derives its existence from any other source than from parent animals generating after their kinds:—for the fact that some insects are always found in certain inanimate substances is no better evidence that they are the offspring of these substances, than the fact that rats being found in houses—is proof that they are the offspring of the houses.

H. P.

Patent Law Cases.

Reaping Machines—The case of McCormick against Seymour & Morgan, for infringement of his reaping machine patent, was tried before Judge Nelson, at Albany, N. Y., in the U. S. Northern Circuit Court last week, and the jury awarded $7,750 damages. The trial lasted several days and was decided on the 24th.

Railroad Car Brake—In the same Court on the 26th, a verdict was given in favor of Henry Tanner, against the New York and Erie Railroad, for infringement of the plaintiff's patent of July 1852, he being the assignee of Batchelder and Thompson. We learn that the decision was to the effect that the Hodge and the Stevens brakes were infringements of the former patent.

Devil's Shoe String---The Remedy.

Messrs. Editors—Your Indiana correspondent desires to know how he may extirpate the above-named vine. It is common in this country, and grows in the woods, to the size of from two to four inches in diameter, and climbs to the tops of the loftiest trees. It belongs to the family Leguminose, the pods are about six inches long, and to the seeds is attached a down, by which, when the pods are opened, the seeds are wafted to a great distance. When they come up in the fields, having nothing to climb, they creep on the ground. The vine is exceedingly thrifty, and will grow to a considerable size and length in one summer. Your correspondent no doubt kills his vines by grubbing, but not having acquainted himself with the source whence nature furnishes a new crop of seeds, he labors under the impression that they are inexterminable. Chop the vines in two in the woods—grub up those in the field, and if any more come, I will go to Indiana and destroy them, free of charge. Yours,

B. W. White.

Cornersville, Tenn., Oct. 10, 1854.

Patent Palliasses.

On the 28th of last May, a patent was granted to James Pigot, of the city of Brooklyn, for an improvement in manufacturing palliasses, embracing the size, stuffing, shaping, tufting, and finishing palliasses of different lengths, widths, and thicknesses, in a more perfect manner than heretofore, by the employment of a frame box, or former, having one of its sides made adjustable, while its bottom and ends are adjustable and removable, for the purpose of accomodating ticks of different lengths, widths, and thickness, and giving them the proper shape and finish.—The sides of said box being set off with holes for guiding the tufting operation after the straw has been properly inserted with the tick. As the testing of any invention is the only way of determining its qualities, we can, from experience, confidently assert that the palliasses manufactured by the patented apparatus of Mr. Pigot, are of a very superior quality in every respect, being durable, comfortable, and convenient.

The Oyster Poisonous.

Considerable excitement prevails in our city owing to the sudden death of a number of our most respectable citizens after partaking freely of oysters. The daily papers in this and other cities have contained lengthy articles respecting the oyster as an article of food, and from the evidence before us it is reasonable to believe that shell fish from certain localities are unwholesome this season, if they do not contain deadly poison. The oyster dealers in this city have already suffered to a great extent in consequence of the depreciation of their trade, and no doubt their business is ruined for the whole season.

Boat Propelled by Electricity.

Some of our cotemporaries describe with no small amount of enthusiasm, some experiments made with a small boat in Boston; the propelling power being an electro magnetic engine. We have not the least hopes of the economical propulsion of machinery—(a boat or machine) by electro magnetism, in the present state of science. A boat was propelled by electricity on the Neva, at St. Petersburgh, at the rate of six miles per hour, more than thirty years ago, under the direction of Jacobi; but it could not compete with steam, and since that time, various like attempts have been made in many parts of the world, with no better success. Some wonderful discovery must be made, before steam can be superseded by any of the known propelling agencies.

Humboldt.

An extraordinary public sitting of the Royal Academy of Sciences, in Berlin, was held on the 23th of August, to celebrate the fiftieth anniversary of the election of Baron Alexander Humboldt. On this occasion, a collossal marble bust of the illustrious veteran of science, from the chisel of M. Boesch, was placed in the meeting-room of the Academy.

© 1854 SCIENTIFIC AMERICAN, INC.

British Association for the Advancement of Science.—No. 2.

THE MOUNTAINS OF THE MOON—Professor Phillips offered some remarks upon the famous Gassendi mountain, so conspicuous on the surface of the moon, and the results of some experiments made to obtain accurate photographs of the moon's surface. Nothing, he said, which the committee of the Association could show upon the subject was to be compared with the results that had been obtained by the voluntary exertions of the photographers of Liverpool. The learned gentleman then proceeded to describe that tract of the moon which had been more particularly committed to him to survey, and which contained the crater of Plato. He illustrated his observations by a very beautiful drawing of this part of the moon's surface, by Mr. Nasmyth, and observed that daily experience showed that the more their telescopic power was increased the less circular appeared the lunar craters, and the less smooth the surface of the moon. All was sharp and irritated—a perfect representation of its past history which was marvellous to see.

PRESERVATION OF FLESH MEAT—Mr. E. Hamilton stated the results of some experiments made by him in consequence of the inquiries of some mercantile gentlemen who were desirous of importing cargoes of beef in a fresh state from South America. The experiments were principally confined to ascertaining the antiseptic properties of binoxide of nitrogen, chloride of lime, and ammonia, upon flesh meats. A second series of experiments was also made to ascertain the effects of mixtures of different gases, particularly with the view of ascertaining whether atmospheric air deprived of its oxygen, could be employed as one of the ingredients, and, in admixture with it, the minimum quantity of binoxide of nitrogen which would suffice to preserve meat from decay. The conclusions which Dr. Hamilton drew from these experiments were:—That the fumes of chloride of lime wili not preserve meat from putrefaction; that chlorine gas could not be employed to preserve from putrefaction meat intendnd for human food; that ammonia could not be employed to preserve meat, since it imparted a repulsive taste and color, and that binoxide of nitrogen preserved beef from putrefaction for at least five months. The meat retained its natural color and consistence almost perfectly unchanged, the gas being absorbed into the pores, and the juice exuded. The quantity of the juice lost was great when the volume of the gas bore a large proportion to the volume of the beef, and the loss was augmented by exposure to light. But, on the other hand, when the volume of beef bore a very large proportion to the volume of the gas, the beef would not be preserved at all. The meat preserved in binoxide of nitrogen, when cooked by roasting had a disagreeable acid taste; when cooked by boiling, the ebullition must be continued at least twice the usual length of time required for flesh meat, and the water must be changed until there was no longer an odor of nitrous acid. The meat had a fresh, tender, and agreeable flavor. The results of other experiments indicated that the injurious action of binoxide of nitrogen could be much modified by an admixture of nitrogen.

ARCTIC AND ANTARCTIC CURRENTS—An interesting paper on the subjeet of arctic and antarctic currents, in connection with the expedition of Sir John Franklin, was read by Mr. Findlay. He entered into a number of explanations of the phenomena of currents, which he illustrated by very elaborately drawn diagrams and maps, and was listened to throughout with great interest. Having concluded what may be considered the main body of his address, he proceeded in a supplementary paper to apply the principles and facts which he had laid down to the case of Sir John Franklin.

In answer to a question from the Chairman as to whether, in case of Sir John having taken refuge on some land as far north as Spitzbergen, he could have found sustenance,

Dr. Scoresby stated, on his own knowledge, that on land as far as 81° there was abundant sustenance for animal life. His own opinion as to the vessels seen on an iceberg being those of Sir John, differed from the opinion expressed by the previous speaker. He thought they were whalers, of whom there were 50 or 60 missing over a course of some years, some of which might be liberated by the parting of the ice. In reply to a further question, as to the character of Melville Island, he thought it was only one of a chain, upon some of which Sir John Franklin might have got, if he had been aided by a southerly wind. He had a strong hope of learning his fate from the expedition which had gone over the ice; and this hope was strengthened by the fact that there had been no search until last year, in a direction likely to meet with Sir John.

Admiral Beechey fully coincided in the views of Mr. Findlay as to the course of the currents, but differed from the preceding speaker in thinking that Sir John Franklin would find in those northern seas sufficient sustenance for himself and his crew. In the event of his having to abandon his ships, his first object would be to make the best of his way to Behring's Straits; and, whilst doing this, he could not have time to collect food. He himself tried the experiment once when in those seas with a party, and they could barely succeed with their guns in supporting themselves for three or four days. With the previous speakers, Admiral Beechey expressed himself satisfied that the navigation of the Arctic seas was perfectly impracticable.

[Since Admiral Beechy advanced the above opinions, the discovery by Dr. Rae of the relics of Franklin has proved their correctness.

TRADE STRIKES—Henry Ashworth read a paper entitled "The Preston Strike, its Causes and Consequences." At the close, Mr. Pear (Dublin) said that, as an employer of labor, and having no inconsiderable amount of capital embarked, he felt a deep interest in the paper just read. It was a subject which concerned the manufacturing community, and the community in general, and he, therefore, hoped that that amount of attention would be paid to it which it deserved.—He agreed in very much of the paper; but he thought they should have been furnished with the *rationale* of these strikes, whether they were likely to last, and what remedies should be applied, as, no doubt, they were a sore evil to masters and men. He had watched these strikes for the last thirty years; and he was induced to believe that they would not diminish, but increase in number and intensity. He arrived at that conclusion because he thought the workmen had not a fair remuneration for their exertions. Col. Sykes rose to order: Instead of a statistical inquiry, they seemed about to wander into speculative matters of political inquiry. Mr. Monckton Milnes: I wish to know does Mr. Ashworth admit the fact that at the commencement of the strike there was a practical difference in the rate of wages paid at Preston compared with other manufacturing localities? Mr Ashworth: I cannot answer that question positively. The current rate of wages was ten per cent. lower in Preston than in Blackburn. That, however, was only on some descriptions of work, as on other descriptions the pay was higher in Preston than in Blackburn. Mr. Finch (Liverpool) could not help observing that, in his opinion, the great majority of the masters were convinced of the justice of the claim made by the operatives for an advance of wages. Mr. Moore felt convinced these strikes were organized by interested individuals, independent altogether of commercial results. He had attended innumerable meetings, and saw the people cheerful and happy; but lately, before the strike, he recognised the faces of several known agitators. Mr. Clay wished to confirm the statement of Mr. Ashworth as to the number of persons engaged in the strike.—They were about 17,000 or 18,000 in number. It was of importance to know the proportion of males and females, as also of old and young. From data on which he could rely, he estimated them in this way: of the 18,000 there were 6200 males and 11,800 females.—Boys under 13 years, 620; girls under 13 years, 650. Youths between 13 and 18 years, 1530; girls between 13 and 18 years, 4400.—Males above 18 years, 4050; females above 18 years, 6750. He had reason to believe that there were about 1000 mothers of infants under five months old, that was, 1000 women employed in factories who were not able to pay attention to their children. The Registrar-General informed him (Mr. Clay) that, during the six months of the strike, infantine deaths amounted to 497 in Preston;—whilst during the previous six months, while work was going on, they amounted to 594.—Now, that opened the question how far it might be proper to discountenance the employment of females in mills who had infant children at home requiring their attention. A vote of thanks was accorded Mr. Ashworth for his valuable paper.

[Such papers as the above do credit to the Association. Our American Association for the Advancement of Science, has hitherto overlooked social economy.

It is indeed cheering to the working classes to find the aristocracy of England taking such a deep interest in their welfare, and advocating their rights, as the foregoing and following afford pleasing testimony.]

CRIMES—GOOD AND BAD TIMES—The Rev. John Clay, Chaplain to the Preston House of Correction, then read a paper "On the effect of good and bad times on committals to prison." He quoted a number of statistics to show that high wages among the working classes did not decrease crime, but increased it, and this anomaly in the condition of the laboring classes he attributed to high wages inducing intoxication and crime, in consequence of the education of the working classes being neglected.

A long discussion followed, in which the Earl of Harrowby, on behalf of the working classes, said they had no where to go but to the public-house as their club. He strongly advocated innocent amusement among the working classes being coupled with education.

Mr. Hill, the Recorder of Birmingham, eulogised the paper, and agreed with the conclusions drawn by the Rev. Mr. Clay.

The Archbishop of Dublin also strongly eulogised the public services of the Rev. Mr. Clay, whose prison reports he had frequently read.

Several other gentlemen addressed the section, and ultimately the thanks of the meeting were passed to Mr. Clay with acclamation.

An Eccentric Will.

A railroad accident took place a short time since near London, by which a Mr. Railing was killed, who it seems was an eccentric character of the queerest kind. He was a man of wealth, and his heirs paid him the accustomed funeral honors, expecting to enjoy liberal bequests; but when his will was opened it read as follows:

"This is my testament. I give and bequeath all my goods, present or future, movable or immovable, in England or on the continent, to that railroad company on whose road I have had the happiness to meet with death, that blessed deliverance from my terrestial prison."

Further on, the testator gives his reasons for his bequest. The idea had taken firm possession of his mind that he was destined to die a violent death, and the most desirable one, in his view, was that caused by the explosion of a locomotive. He traveled, therefore, constantly, on the railroads in England, Belgium, and France. There was not a station where he was not known. All the conductors were familiar with his peculiar costume. He had narrowly escaped death several times. Once he was shut up in a car under water, another time he was in the next car to the one that was shattered, and he described with the greatest enthusiasm those terrible accidents, when he saw death so near without being able to obtain it. Disappointed in Europe, he went to the United States. He made frequent excursions on the Ohio, the Missisippi, the Ontario, and the Niagara, but notwithstanding frequent explosions, he returned with a whole skin. He was destined to be crushed under a car of the mother country.

Opinions of the Press.

"The SCIENTIFIC AMERICAN has reached its 10th volume, and is without question the most valuable publication of its kind in this or any other country."—[Mobile Tribune.

"The SCIENTIFIC AMERICAN is an admirable paper, conducted with ability and of great value. We have repeatedly referred to it and take pleasure in giving it our highest commendation."—[Observer, Baltimore, Md

"Probably no other journal of the same character is so extensively circulated or so generally esteemed for its practical ability."—[Advocate, Charleston, S. C.

"We know of no publication in this or any other country, that approaches to this for the real utilitarian information which it weekly presents."—[Gazette, Norwalk, Ct.

"We regard the SCIENTIFIC AMERICAN as perfectly reliable and strictly truthful—rare qualities in this age of gas, brag, and puff—and a work of inestimable value to mechanics, manufacturers, and inventors."—[Whig, Flint, Mich.

"We once heard a respectable and intelligent mechanic remark that 'he had taken the SCIENTIFIC AMERICAN almost ever since it had an existence, and would not be deprived of it under any condition whatever.'"—[Messenger, Muncie, Ind.

"Persons who wish to obtain patents are admonished that the publishers of that paper are the most successful prosecutors, and it has come to be well understood that no inventions are worthy of a patent unless heralded through the SCIENTIFIC AMERICAN."—[Spirit of the Age, Woodstock, Vt.

We could multiply these friendly notices *ad infinitum*, but have not the space to devote to them. One thousand newspapers have favorably noticed the SCIENTIFIC AMERICAN on the present volume.

Assyrian Discoveries.

From an account of Assyrian researches and discoveries in the last Annual Report of the Royal Asiatic Society, made by Colonel Rawlinson, we learn that the most recent, as well as the most important discovery, in an historical and geographical point of view, is that of another obelisk, in the south-east corner of the great mound of Nimrod, and erected by Shamasphul, the son of Shalambara. The date of the obelisk is about the beginning of the eighth century B. C. The chronology of Assyria has received a valuable accession by the discovery of a record of one of the early kings, whose name is read Tiglath-Pileser, like that of the later king of Assyria known to the Hebrews. Tiglath-Pileser I. is shown to have flourished 418 years before the reign of Sennacherib. From letters more recently received, we learn that Colonel Rawlinson has read the name of Semiramis on the statue of the god Nebo, dug up from the ruins of the palace of Nimrod. Semiramis appears, in a legend upon the statue, to have been really the wife of Pal, King of Assyria, the same as is mentioned in the Book of Kings—the contemporary of Menahem, King of Israel. This would place Semiramis 150 years before Nebuchadnezzar, which will curiously confirm the tradition recorded by Herodotus—that this queen preceded Nitocris, the wife of Nebuchadnezzar, by five generations, equal to 150 years. A further very curious discovery, made by Colonel Rawlinson is, that the employment of the Babylonian cuneiform writing was continued down at least so late as the time of the Macedonian dominion in Asia, the commencement of the third century before Christ.

Improvement of Navigation.

Mons. Maillefert, whose operations in submarine blasting are so famous, has engaged to remove the rock obstructions in the Long Sault, Coteau, Cedars, and other rapids of the St. Lawrence, between Ogdensburg and Montreal. Such an improvement of the navigation would be of vast importance and value.

New Use for Beet Root.

Among the many uses to which beet root can be applied, is that of making pasteboard. A manufactory has just been established at Foulrin in France.

© 1854 SCIENTIFIC AMERICAN, INC.

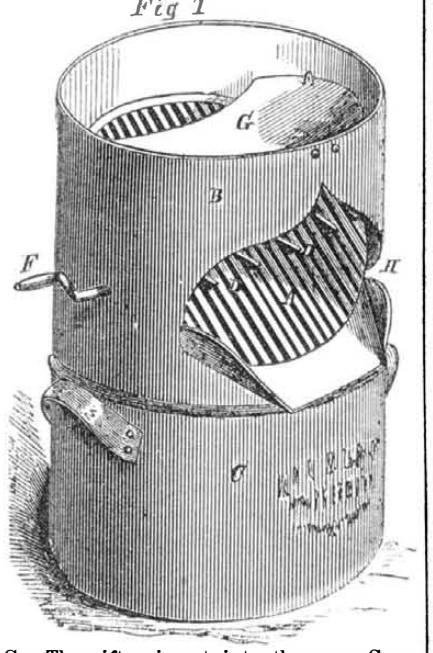
New Inventions.

Sickles' Coal Ash Sifter.

Figure 1 is a perspective view, and figure 2 a vertical section of an improved sifter for separating the ashes from coal, for which the inventor, Gerard Sickles, corner of Classon and Myrtle Avenues, Brooklyn, has taken measures to secure a patent.

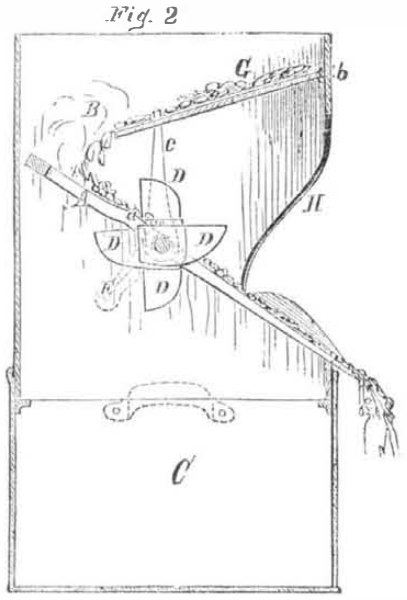
C is a common cylindrical pan made of sheet iron, and is employed for receiving the ashes; B is the sifter, it has an open bottom, an inclided grate, A, and a hopper plate,

Fig 1



G. The sifter is set into the pan, C, as shown in figure 2, to be taken out and put in at pleasure, to allow the ash pan with the ashes to be carried away. The inclined grate, A, is fitted to the inside of the case of B, and the ribs are bowed at *a*, bridging the spindle of the handle, F, which has its bearings in the sides of the case. On this spindle are placed small wings of iron, D, one between each pair of ribs. The coal ashes to be sifted are poured out of a scuttle into the open top of B, on plate G, which is set inclined, and has a crescent piece cut out at its back

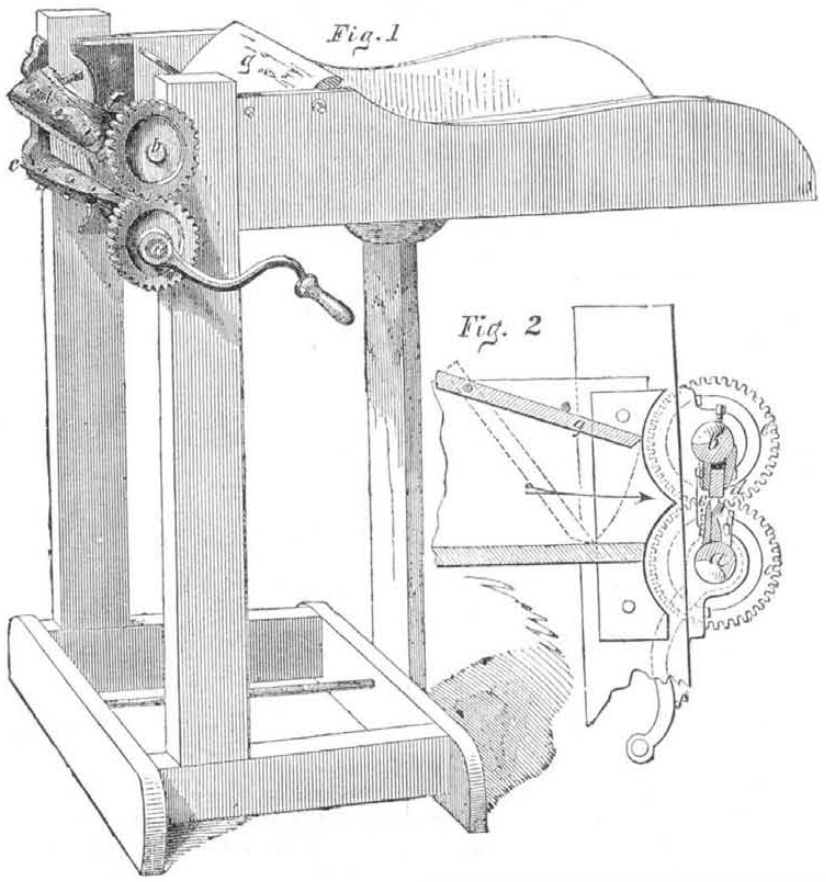
Fig. 2



end to let the ashes fall on the top of the inclined grate, as shown in figure 1. The plate, G, is secured to the shell or case of B, by a hinge, *b*, and rests on the shoulder of a vibrating bar, *c*, (one at each side). These bars have slots at their lower ends, and the spindle of the wings, D, pass through them, and has a cam working in each slot, so that as the spindle with the fans, D, is rotated, the vibrating bar, *c*, shakes the plate, G, and makes the coal and ashes drop on the grate, A, as shown in figure 2. As the wings or fans, D, rotate, they separate the pieces of coal, and allow all the ashes to fall down between the ribs into pan C. These fans also carry forward the coal, and according to the speed with which they are rotated, so is the coal and ashes screened. There is an opening, H, in the case, B, of the sifter, at the bottom of which the grate of the flange projects—and the sides of which have upturned flanges, to guide the coal into the scuttle, which is placed on the ground below the shute of the grate, to receive the screened coal. From this description and the illustrative figures, every person who reads this will understand the construction and operation of this coal and ash sifter. The claim is for the agitating wings, D, as described. It is a very good sifter and operates well. Every family should sift their coal ashes, and the partially burned coal should be rubbed so as to remove all the ashes, as is provided for in this kind of sifter, which is manufactured at the afore-named place in Brooklyn, where more information can be obtained respecting them.

GALE'S STRAW CUTTER.

Fig. 1

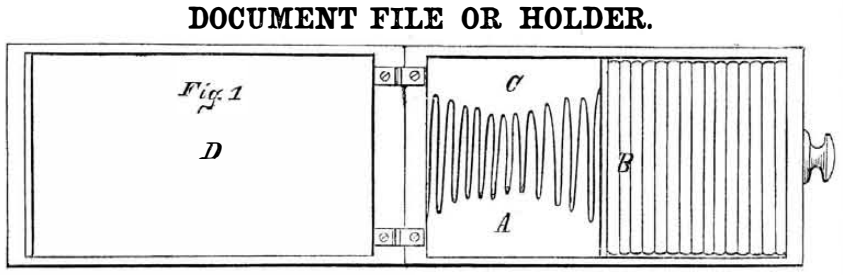


On the 12th day of September last, a patent was granted to Warren Gale, late of Troy, N. Y., for the improvement in straw cutters represented in the annexed engravings, figure 1 being a perspective view, and figure 2 a vertical section. The nature of the invention relates to the knife (or knives) of the cutting cylinder, so that it shall cut against a flange (or flanges) on the opposite cylinder. Also, in combination with the cutting cylinders, the method of arranging the mouth or throat through which the straw is fed, so that it shall govern the feed of the straw to the cutters. The frame of the machine is like that of common straw cutters; *a* is the shaft of the cutting cylinder; it is driven by a crank handle, *f*, and has a cog wheel, *e*, on it, gearing into another above, giving motion to the cylinder of shaft *b*, against which the knife cuts the straw. *c* is the cutter; it is attached to a flange by setting screws passing through slots, to make it adjustable. *d* is a flange projection on the upper cylinder, which is provided with a piece of raw-hide, against which the knife, *c*, cuts, so as to protect the edge of the latter. The raw-hide (or piece of leather) is secured to the flange by set screws and it can be adjusted, or forced down towards the knife, by a screw passing down through the cylinder; a slot is therefore cut in the raw-hide to allow the fastening screws to pass through, while its upper end is pressed by the top screw. The knife in this machine requires only to be adjusted to cut against its opposing projection, or rotating table. This machine has two throat pieces; the upper one, *g*, presses on the straw, which is fed in under it, as shown by the arrow, fig. 2, and the lower one, which forms the bed board for the straw. These two pieces can be elevated and lowered, and held in place by pins at the front end, while at the back end they are either hinged or work on pivots. By contracting the space between these throat pieces, the straw is cut finer, by expanding the space the straw is cut larger. As the knife, *c*, and the projecting piece, *d*, rotate, they grasp the straw, draw it forward, and cut it through by a pincing cut, when they come opposite one another. It is evident, therefore, that if the throat is wide, the knife and projection, *d*, will catch the straw at an earlier part of their revolution than if more contracted, and *vice versa*. The adjustable throat therefore governs the length of the cut. This adjustable throat is also applicable to spiral or oblique knives as well as straight ones. There is no way of adjusting the length of cut with a series of knives cutting against a full cylinder, nor by using one knife, cutting against a full cylinder, the cut of which must be very long or the cylinder very small. Straw cutters have been made with adjustable throats, but not in combination with the projection on the one cylinder and the knife on the other, to grasp the straw and feed it forward, as explained.

The claims embraced in this patent are two in number; one for the knife and flange arranged on the two cylinders to operate as described; and the other for the adjustable throat in combination with these cylinders, constructed and operating as described.

More information may be obtained by letter addressed to the inventor, No. 4 Market st., Boston.

DOCUMENT FILE OR HOLDER.



This figure is a top view of an improvement in Document Files, for which a patent was granted to Henry E. Woodbury, of Washington, D. C., on the 8th August last.

In filing public and private documents it is usual to fold them into regular forms and sizes and endorse each one separately with an epitome of its contents, (date of reception or note having reference to the particular character of business to which it relates) then tie a band or put in wrapper the several documents relating to the same business accumulating from time to time.

When the business is of a varied character, many such files have to be kept, and in many instances, as in the various departments of the Government where frequent reference to papers on file is requisite, much trouble arises, both in filing away new papers and in abstracting old ones for examination in tying and untying the tape or band, and such frequent tying and untying not only exposes papers to loss, but by the abrasion of the tape or band on the edges of the folded documents rubs and wears them into holes, whereas their perfect preservation, in some instances, for an indefinite period, is a matter of the utmost importance.

To obviate such injury, inconvenience, and annoyance in the filing of the folded documents, is the object of this improvement, which consists of a box or compartments, A, the depth and width across of which corresponds to the length and width of the folded document, and is of any convenient length according to the number of papers designed to be held in one file. The sides of this box may either be made of elastic material to enable them to yield to papers of different widths being filed therein, and, to protect the edges of the papers or the sides of the box, may be of hard material. Within this box is a loose holder or platen, B, nearly the same width and depth as the box inside, which is hung or attached at its center to a coiled spring, C, the other end of which is fastened against the back end of the box with screws to force up the platen, B, towards the front end of the box. A lid, D, covers the opening in the top of the box.

The lid of the box being opened, the folded documents are inserted between the front end of the box and the platen, B, by pushing back the platen, which by its elastic pressure holds the papers thus inserted firmly in their place, and so from time to time fresh documents may be added till the box is full, or old papers be extracted without much or any delay, and without displacing or removing from their hold the other papers in the file, and by the manner in which the platen is hung and acted upon, facility is afforded for examining the endorsements of the several papers on file, as the flexibility of the platen or its capability of being bent or leaned back, admits of all or several of the papers being drawn partly out of the box, A, and of being pushed back or separated at their top ends to read their endorsements without releasing the papers from the hold of the spring platen. Any number of these compartment files may be built together or separate as represented.

The claim is for the document file constructed as described, with its self-adjusting platen, B. More information may be obtained by letter addressed to the inventor.

Cotton Heckler.

J. W. Crenshaw informs us that he has put in operation, in the Bluff City Mills, Memphis, Tennesee, a new machine for preparing and cleaning cotton from the bale, as preparatory to carding, which he assures us requires less power than willowers, breaks the staple less, and cleans far better. It consists of a gang of saws ten inches in diameter, each placed three-eighths of an inch apart, which run 1000 revolutions per minute. A brush wheel located nearly on the top of the saws, making fifteen hundred revolutions per minute, removes the cleaned cotton, and blows it to any part desired, like a cotton gin. The saws receive the cotton from fluted rollers—the cotton being fed in on an endless apron. The process is that of ginning the bale cotton, instead of employing the machine now used for preparing bale cotton in factories, and which is vulgarly named after his Satanic majesty.

To Get Rid of Cockroaches.

Common red wafers scattered in the haunts of these vermin, will often destroy or drive them away. Red wafers are colored with oxyd of lead—a deadly poison. We have tried this remedy in our office, and know the truth of this receipt.

© 1854 SCIENTIFIC AMERICAN, INC.

Scientific American.

NEW YORK, NOVEMBER 4, 1854.

Another New Rule of the Patent Office.

The people who live under constitutional governments are always the most prosperous and progressive; if any proof is desired for confirmation of this opinion, we point to our own country, England, and France. Under a constitutional government the laws (whatever they may be) have a fixed relationship to the people, hence the farmer, the manufacturer, the mechanic, and merchant, can plant and plan for the future, well knowing that their projects cannot be abruptly disturbed by the dictum of an irresponsible ruler. The sudden disturbance of any fixed policy in any department of a government, is impolitic, and in most cases fraught with evils; and such results, we conceive, will be produced by the following new rule, just issued by the Patent Office:

"PATENT OFFICE, Oct. 23, 1854.

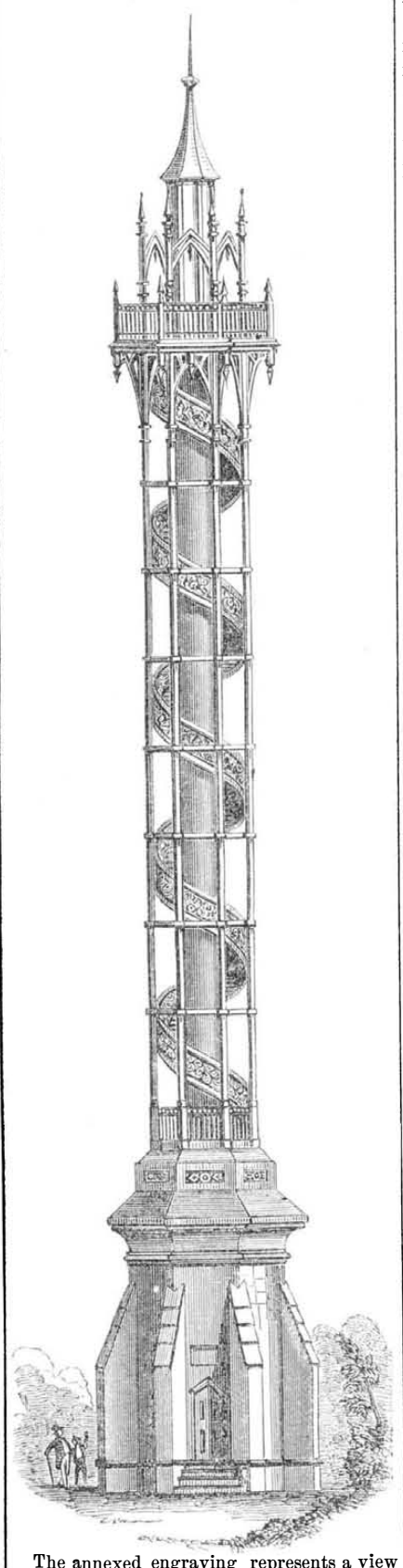
Hereafter, no model will be received at this office, as exhibits in interference or other cases, exceeding one foot in length or hight. They should be neatly and substantially made, and of durable materials.

CHARLES MASON, Commissioner."

On the 20th of last February, the Commissioner issued a circular in which it was asserted that models of more than one foot in length and hight would be permitted by the Patent Office, for special reasons, to be shown by the applicants; the above order abruptly cancels this right; but we cannot consider it a question of privilege on the one side. The only law relating to this subject, is that of Section 6—Act 1837, which says, "he shall (the inventor) furnish a model of his invention, in all cases which admit of a representation by model, of a *convenient size* to exhibit, *advantageously, its several parts.*" By the strict rendering of this law, we consider that the Patent Office is debarred from making a positive rule like the above. The law is of a flexible character, in favor of the inventor, for him to exhibit *advantageously* the several parts of his invention! Hitherto, under the present Commissioner of Patents, the practice has been to receive models whose dimensions did not exceed a *cubic* foot in the gross; that is, they might be long and narrow—18 inches or more in length—so that they did not occupy more than 12 inches every way, without reference or limit to any *one* of their dimensions *taken separately*, as is now being done. Although we looked upon this rule as too imperative in many cases, we consider it to be generous and reasonable in comparison with the new order. Under the rule as heretofore interpreted, many models (such as bridges) were received much longer than twelve inches. If they did not occupy a space more than twelve inches every way, they were accepted by the machinist in office. There are many inventions to which justice cannot be done by a model only twelve inches in length and hight, but it may be said, that 'some positive rule—some fixed standard—is necessary;' there is both force and justice in this argument; still, we think that the cubic foot rule should be maintained, and inventors forewarned of a change, for at least one year before it be revoked.

The above new rule has already operated oppressively—a number of very fine models (some of them having cost hundreds of dollars, and which were constructed before the new rule was promulgated) have recently been rejected, because they exceeded the standard by only an inch or two. Of the list of models refused by the Office, which was published in the last number of the SCIENTIFIC AMERICAN, only two exceeded a cubic foot in their dimensions, the rest being within that standard. The owners of these models had not the slightest suspicion of their being rejected, but to suit the abrupt change in the policy of the Patent Office, those nine inventors will be subjected to the expense of $153 for alterations of their models, before they will be accepted. We have fifty or sixty models now in our office, which will no doubt be refused in like manner, costing the inventors from three to five hundred dollars to have them razeed, unless the Commissioner countermands the order (which in justice to the inventors he should do) so far as having this new rule *immediately* enforced. All we ask is, that inventors may be forewarned of these new rules of the Office; and if they do not then comply with the requirements, the Office will be justified in refusing to accept their models. We hope the Commissioner of Patents will exhibit as much generosity towards inventors, with respect to models, for six or twelve months to come, as the law fully allows him to do. We ask no more for our inventors, and they deserve no less; to oppress them by sudden and expensive exactions is neither generous nor wise.

Water Pipe at West Philadelphia.



The annexed engraving represents a view of the famous water-pipe at West Philadelphia, designed by Mr. H. Howson, of Camden, N. J., (late of Philadelphia,) and alluded to in a recent number of the SCIENTIFIC AMERICAN.

The central portion of the tower, which consists of the pipe for receiving the water is composed of plate iron, varying in thickness from three-eighths of an inch at the bottom to one-fourth of an inch at the top, and is five feet in diameter and one hundred and thirty feet long. This pipe is riveted to a flange, on a cast iron plate two and a half inches thick, and the latter is securely bolted to the main foundation plate, which is permanently attached to a substantial stone foundation by means of anchor bolts. An opening is left in the stone foundation for the passage of a twelve inch branch pipe, which communicates with the distributing main, and with the interior of the central pipe of the tower. To a hight of thirty-six feet above the ground is built the masonry (cut stone) which forms the pedestal of the column.—This is octangular; fifteen feet across, with a circular opening nine feet six inches in diameter, thus leaving an annular space of two feet three inches between the outside of the pipe and inside of the masonry for the spiral stairway. Radiating from the center of the pipe and passing across the annular opening at suitable intervals, are a number of rods connected to both the pipe and the stonework, thus serving the double purpose of connecting the masonry and pipe together, and acting as supports for the steps. At each of the eight corners of the pedestal are built buttresses, twenty-four inches thick, and twenty-two feet across from one buttress to the opposite. The upper part of the stone work is surmounted with a cornice twenty feet across, above which, on each of the eight sides, are cast iron pannels ornamented with gothic tracery. Access to the interior is obtained through a gothic door-way three feet wide and eight feet high. To the top of the masonry are secured cast iron plates, on the corners of which, and in a line with the corners of the stone work, are the eight pedestals for the reception of the series of cluster columns which form the exterior of the shaft. Between these pedestals are ornamental gothic railings. At intervals of ten feet in hight are cast iron rings, which serve as connections for the cluster columns. Spiral string pieces are bolted to the outside of the pipe, and similar pieces to the inside of the columns, both have a number of small flanges to which the steps are bolted separately. To the exterior string piece are secured a series of castings, so carved as to represent a continuous gothic scroll. These are further confined to their places by a suitable hand rail, which is bolted to the cluster columns. By this arrangement the spiral string pieces and the hand rail act as diagonal braces to the columns. The stairway terminates at a landing seventeen feet across, which is composed of plates laid on radiating cast iron beams, one end of which are fastened to the pipe and the other to the corners of the entablature. The whole is supported by the cluster columns and ornamental brackets, securely bolted to both the beams and the columns. Surrounding the landing is an ornamental gothic railing of a similar pattern to that before alluded to. The columns are continued upwards through the platform, and are connected together at the top by gothic arched pieces, and to the pipe by flying buttresses, the tops of the columns themselves being furnished with suitable pinnacles. The top of the pipe is surmounted with a spire of plate iron,—which terminates in a flag staff. The hight from the ground to the platform is one hundred and fifteen feet, from the level of the river to the platform upwards of two hundred and twenty-five feet, and from the ground to the summit of the spire, one hundred and forty feet. The water for supplying the district of West Philadelphia is forced from a subsiding reservoir in connection with the river Schuylkill, by means of two large Cornish engines, also designed by Mr. Howson.—The surplus water not in immediate requisition ascends the interior of the stand pipe, and thus an efficient head is produced. Stand pipes, as adjuncts to water works, have been erected in various localities, among others may be mentioned that at the East London works. These however have generally been made quite plain, without any ornament whatever. A plain pipe erected in a prominent position in so flourishing a district as that of West Philadelphia, would have been somewhat of an eye-sore, and great credit is due to the designer for a structure in which both utility and ornament are combined.

The people of Philadelphia have exhibited excellent judgment and correct taste, in adopting and carrying out this design, which does great credit to Mr. Howson.

Testing Steam Engines.

On page 11, this volume SCIENTIFIC AMERICAN, we published the frank and open letter of J. S. Winter, of the Montgomery Iron Works, Alabama, describing the experiments made with one of his engines, to test its actual power by the dynamometer. The power indicated was 41·80 H. P., with a cylinder one foot in diameter, one and a half foot stroke, carrying 57 lbs. pressure in the boiler, with velocity of piston 379·5 feet per minute. We stated that its performance was more than ordinary. A correspondent, F. J. Masten, of Taunton, Mass. takes exceptions to its being an engine working up to the standard, and by calculation ($12^2 \times 7854 \times 57 \times 379{\cdot}5 \div 33{,}000 = 74{\cdot}13+$) makes the nominal power 74·13 horse power, which, allowing one third for friction, the engine should work to 49·42 horse power not 7·62 below the standard.

We have to say in reference to this, that the pressure in the cylinder is never equal to that in the boiler—being according to circumstances from two to five pounds less.

We have also received a letter from a correspondent who expresses a wish for information respecting the amount of fuel used. The economy of fuel in an engine depends more on the boiler than the engine. We do not know whether the engine of Mr. Winter worked the steam expansively or not, but we presume it cut off at some part of the stroke, as almost every engine is now so worked.

Cast and Wrought Iron Water Pipes.

A correspondent inquires of us, if we can furnish him with data for calculating the length of time wrought iron water pipes will endure in a sand and clay soil. We cannot, because the time required to thoroughly rust wrought iron depends on certain conditions Wrought iron rusts with extraordinary rapidity when exposed to a moist atmosphere, and especially a sea air. It also oxydizes very rapidly when buried in a porous moist soil, and especially what is called *sour water*, such as water containing vegetable sap, like that of decayed leaves, &c. But wrought iron pipes covered with a thin coating of red lead, thoroughly dried, and another on the top of this of coal tar, then laid underground in a bed of cement, will endure for a century. Cast iron pipes, however, are generally employed for conveying water underground, and we think they are preferable, being cheaper, and not subject to rust.

Ohio Machinery.

Extensive machine works for manufacturing all kinds of machinery have recently been put into operation at Newark, Ohio, under the superintendence of J. E. Holmes, assisted by H. L. Babbitt, who rendered valuable services in the Machine Department of the Crystal Palace, when Mr. Holmes was Superintendent. We have no doubt but excellent machines will be turned out of the Newark, (Ohio) Machine Shop, under the charge of such able practical machinists, and we therefore bespeak for them from the people of Ohio, a share of their patronage.

$570 IN PRIZES.

The Publishers of the SCIENTIFIC AMERICAN offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

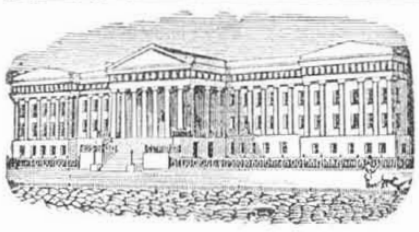
$100 will be given for the largest list,
$75 for the 2nd, $35 for the 8th,
$65 for the 3rd, $30 for the 9th,
$55 for the 4th, $25 for the 10th,
$50 for the 5th, $20 for the 11th,
$45 for the 6th, $15 for the 12th,
$40 for the 7th, $10 for the 13th,
and $5 for the 14th

The cash will be paid to the order of each successful competitor; and the name, residence, and number of subscribers sent by each will be published in the SCIENTIFIC AMERICAN, in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new Prospectus on the last page.

© 1854 SCIENTIFIC AMERICAN, INC.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 24, 1854.

PLOWS—H. F. Baker, of Centreville, Ind. : I do not claim making mold boards of plows capable of being expanded and contracted independent of the manner of effecting the same.

But I claim the manner described and shown of providing the share which forms part of the mold-board with two curved slotted arms, and attaching the slotted curved end to the arm and its forward end to the point, and combining the same with the curved slotted arm and adjusting lever, through the vibrating rod, in such a manner that the plowman can, while behind the plow, adjust the mold-board in the arc of a circle with greater convenience and facility than heretofore, substantially as described.

SIFTING AND BOLTING—Mark S. Bassett, of Wilmington, Del. : I do not claim the hopper, the flat sieve, or rotating riddle alone, nor the shaft and bars as described.

But I claim the riddle as arranged and described, in connection with a shaft and bearings centralizing said riddle so as to rotate against an ordinary flat sieve disk at its margin, as a feeder, distributor, and vibrator, combined for the uses and purposes set forth.

SMUT MACHINES—John D. Bedwell, of Uhricksville, O. : I do not claim the combination of a stationary outer and rotating inner cylinder, constructed of metal bars with spaces between them and the bars in the outer cylinder overlapping each other for the passage of smut, dirt, &c., within or through them.

Nor yet do I claim a close outer case or cylinder surrounding the beaters and communicating by a section or draught passage with a fan or blast separating trunk, arranged as described, as such is common to other smut and separating machines.

But I claim the rotating inner and stationary outer cylinders, both constructed of overlapping metal bars, substantially as specified, when combined and arranged with an outer close cylinder, and operating in connection with a fan blast or suction made to communicate with the interior of the rotating bar cylinder, as well as with the enclosed space surrounding the outer stationary bar cylinder, and with the trunk, as described.

STRAW AND GRAIN SEPARATORS—Archibald Bowen, of Wadesville, Va. : I claim the method of separating grain and chaff from the straw, by the combination of the inclined vibrating bed, with the perforated jointed bed, arranged and operating substantially as set forth ; so that the grain and chaff are separated from the straw, and the straw conveyed over the foot of the machine by the bed, B, while the bed, E, conveys the grain and chaff in the opposite direction, and submits the same to the action of the fan blast for further separation.

I also claim the extending of the upper screen by the double inclined plane, in combination with a blast compressed by a covering above the screen, for the purpose that an eddy may be formed by the blast, and the grain, if carried too far by the blast, be returned upon the inclined plane, to screen, substantially as set forth.

MACHINERY FOR SOFTENING HEMP AND FLAX—Robert Boyack, of Poughkeepsie, N. Y. : I do not claim the fluted rollers separately, for they have been previously used.

I claim softening flax, hemp, &c., by means of a reciprocating plate, having a slot through it, and working between two pairs of fluted rollers, the flax or hemp passing between the two pairs of rollers, and through the slot in the plate and operated upon by the plate and rollers, as shown and described.

MACHINERY FOR CLEANING COTTON—Sanil. W. Brown, of Lowell, Mass. : I disclaim a rack or grid made of bars of iron or wood, so shaped as to present a flat surface, or series of flat surfaces to the cotton or other substance as it is driven over them by the beater.

Neither do I claim a rack or grid, the bars of which are round wires, as both of these devices are well known.

I claim making racks or grids to be used in cotton and other pickers, of a number of bars of iron or other substance, each of these bars being beveled to an edge, and these edges so arranged and placed in the rack, that the cotton or other substance will first come in contact with the edges of the bars as it is thrown forwards over them by the beater.

The bars of these racks being tied or held together once in about three inches, more or less, by cross ties, they being cast with the bars of the racks, or otherwise firmly connected to the bars, for the purpose of staying them, and always presenting parallel slots of equal width for the dirt to pass through, all being arranged and operated essentially as set forth.

CHAIRS FOR ROUND RAILS—P. S. Devlan, of Reading, Pa. : I am aware that tubular rails of various forms have been devised for railroads, and that the outside jaw of an ordinary chair has been so elevated as to take the tread of the wheels in passing over the joint. These I do not claim.

But I claim the method of confining cylindrical rails at their joints by a chair which forms the rail between the joints and so made as to keep and support the rails in proper line, whilst they may, at the same time, be turned in the bearings in said chairs, as well as the intermediate ones, substantially as described.

MILL BUSHES—G. L. Dulany, of Long Meadow, Va. : I claim the use of springs, actuating the nuts on draw bolts, for the purposes set forth.

SEED PLANTERS—A. B. Earle, of Franklin, N. Y. : Drill tubes have been connected to drag bars by means of lugs, brackets, braces, and screw bolts, and drill tubes have been inserted into a beam attached to and parallel with the axle of the machine. I do not claim them.

A spring guard plate has also been adapted to a series of rotating discharging cups, but not in such manner as to detain any excess of seed which the cup might contain and drop it into the next, but to such a guard I make no claim.

I claim constructing the drag bar and drill tube, and connecting them in the simple and substantial manner set forth.

Second, the spring guard plate fitted in each delivery opening between the hopper and the slide to prevent the fracture or bruising of the seed when the slide is drawn suddenly back, as described.

GRANARIES—Ebenezer Ford, of Spring Cottage, Miss. : I am aware that salt has long been used as a filling between the timbers of ships, and also between the walls of ice houses, and therefore to such I make no claim.

But I claim the mode described of making granaries having the walls, floors, and partitions filled in with common salt, substantially as set forth.

GUTTA PERCHA STEREOTYPE COMPOSITION—Julius Herriet, of New York City : I claim making molds and plates for printing characters or figures of gutta percha or india rubber, compounded with some other substance or substances, substantially as described, which shall give to the compound the required hardness and stiffness, and not destroy its plasticity when in a heated state, substantially as described.

BRAN DUSTERS—Joseph Johnston, of Wilmington, Del. Ante-dated April 24, 1854 : I do not claim any originality in discovering that cast metal possesses greater rigidity than wood, or that it is less susceptible to hygrometic or temperature changes of the atmosphere.

Nor do I claim any particular mode or manner of inserting or attaching as much wood into an iron or other frame or foundation or support as may be necessary for nailing, attaching or in any way fastening thereto rails, laths, wire or other cloth.

Neither do I claim to be the first who discovered that metal is a better conductor of electricity than dry wood.

But I claim constructing the frames of the concaves or cylinders which support the wire cloth in bran dusters of cast metal, so as to secure the object and advantages as set forth.

LOOMS—B. H. Jenks, of Bridesburgh, Pa. : I claim, first, the single spiral cam in combination with the shifting clutch and lever, for raising and lowering, alternately, a two shelf shuttle box, or holding the same stationary, for a longer or shorter period substantially as set forth.

Second, I claim the method described of rendering the pattern or pin wheel capable of working larger patterns than it could heretofore work without increasing its size by means of a multiplier. whether the same be constructed arranged and connected with the wheel, as described, or otherwise, provided the wheel has its capacity increased, substantially as set forth.

Third, I claim one shuttle binder, whether placed in the front or back of the lay, in combination with a series of shuttle boxes, in such manner that the binder will perform the ordinary duties of that instrument for every shuttle box, of a series however numerous, substantially as set forth.

Fourth, I claim arranging and operating the shuttle binder independent of the shuttle boxes, in such a manner that it shall be withdrawn from the shelves at the proper time to allow the boxes to be moved without obstruction from it.

Fifth, I claim the method described for clearing the shuttle from the picker preparatory to raising or lowering the shuttle boxes, by moving the shuttle from the outer end of the box a short distance by a slight forward movement of the picker, or holding the picker slightly in advance of its extreme back position until the shuttle is in place, and then allowing it to retreat back from the end of the shuttle, substantially as set forth, whereby the picking mechanism detaches itself from the shuttle before the shuttle box moves, instead of making this clearance dependent upon the motion of the lay or other parts of the loom, as heretofore.

I am aware that the clearance of the shuttle has been effected heretofore by striking against a recoil spring, and by moving laterally against the inclined plane, therefore I confine my claim to the method of clearing by the motion of the picker itself.

Lastly, I claim the construction of the shifting cam for working the treadles with its two screw thread and nuts of unequal pitch formed on separate sections of the cam ; the sections which contain the thread of longest pitch being removable, so that a corresponding piece with a thread of different pitch may be substituted, to adapt the cam to operating a variable number of treadles, and likewise to facilitate repairs.

CARPETS AND RUGS—J. G. McNair, of West Farms, N. Y. : I claim a new fabric, which I denominate "Tapestry Chenille," consisting of tapestry chenille weft-woven with the colors to produce the designs in sections, but without the ground color of the intended design, which prepared chenille weft is afterwards woven into and combined with a brussels, ingrain, or other web, which is to constitute the ground of the design, substantially as specified.

FIRE ARMS—G. F. and A. H. Palmie, of Berlin, Prussia : We claim, first, the formation of a cushioned valve seat upon the end of the needle bar, to close the opening through which the needle passes into the charge, and also to prevent concussions of the main spring, as described.

Second, we claim the safety locking bolt, constructed as set forth, being an independent positive stop to hold the main spring and prevent the discharge of the gun when desired, substantially as described.

PEN HOLDER—Myer Phineas, of New York City : I claim the use or employment of a spring re-acting in both a longitudinal and transverse direction in combination with a cylindrical pen holder, constructed and arranged substantially as described.

POLISHING PAPER—E. L. Perkins, of Roxbury, Mass. : I claim the combination of the pressing roll, a bed plate (over which the roll runs back and forth) to support the paper beneath the roll and feeding rolls, or the equivalent thereof, arranged to feed the paper across the bed plate with an intermittent motion, which alternates with the passage of the pressing roll, along the bed plate, substantially as described, and this combination I claim, whether the several parts be constructed and arranged as described or otherwise.

MAKING WROUGHT IRON DIRECT FROM THE ORE—JAS. Renton, of Cleveland, Ohio : I do not claim the combination of the de-oxydizing apparatus with the puddling furnace to discharge the de-oxydized ore directly on to the puddling bottom, as this has already been secured by letters patent, as specified.

I claim combining with the combined de-oxydizing apparatus and puddling furnace, as described, the employment of a blast or blasts to be forced on to the de-oxydized ore on the hearth or hearths, substantially as specified, to aid in decarbonizing the ore and increasing the heat, as specified.

PEN AND PENCIL CASE.—John H. Rauch, of New York City : I claim the employment of the cylindrical turning slide, having a T-shaped slot cut in its upper end, and a spur secured in one of its lips, in combination with the slotted pen and pencil tube and pins of the pen and pencil, when said tube is provided with three longitudinal slots, and a transverse groove or their equivalents, the whole arranged, combined, and operating in the manner described.

PEN AND PENCIL CASE—John Richardson, of New York City : I claim the combination of the adjusting pin arranged and operating as described, with the pen and pencil holders and the sliding ferrule for moving them in and out arranged and operating substantially as described.

I also claim the parallel slots in the frame, in combination with the adjusting pin, as described, whereby the holder may be increased and diminished in length by extending and contracting its upper end, as described.

SQUARE, SCALE, LEVEL AND BEVEL—Josiah Shanklin, of Parkersburgh, Va. : I claim the combination of the blades with the grooves and thumb screws constructed and arranged in such manner that my instrument can be used for the purpose of a square, bevel, level, and scale, substantially as described.

SAFES—Benj. Sherwood, of New York City : I claim the combination of clay with about an equal quantity of alum of commerce or any other salt that will melt with dry heat to form a fire-resisting and a fire-annihilating compound as described.

I also claim placing in the safe next the outer walls, a thin fire brick or tile to protect the composition from the contact of fire when the iron shall have been burnt through, arranged substantially as described.

FASTENING LAMPS TO LANTERNS—Emile Sirret, of Buffalo, N. Y. : I claim fastening the lamp to the bottom of a lantern by means of a vibrating spring lever carrying a bolt pivoted near each end of it, said bolts passing through the bottom of the oil cup to enter a groove or flange inside the bottom of the lantern, substantially as set forth.

STOVES—Oron W. Wade, of Versailles, N. Y. : A stove has been made with mica sides for affording light and heat, and also a method has been essayed for making the sides of soapstone, these I do not claim.

I claim a stove, the sides of which are doubled, and made, one of them, of transparent or translucent material, and the other of an opaque substance, one or both of which may be removed or replaced at pleasure, substantially as described.

MILLS—Wm. Warwick of Birmingham, Pa. : I claim the mode of regulating the cut of grinding mills by the insertion of a traveling wheel or anti-friction roller in combination with the beveled track on which the roller travels.

I also claim as original the position of the thumb screw, it being parallel with the handle and not as in other mills, perpendicular with the cutting burr and shell, also its use as a journal for the traveling roller.

ROTARY STEAM ENGINE—Benjamin H. Wright, of Rome, N. Y. : I claim, first, whenever a central piston wheel is used, the double cylinder, the one sliding on the other, in the manner and for the purpose substantially as set forth.

Second, I claim the two parts separately and in combination, viz., the method of inserting a single piece of packing in the inner surface of the piston through an aperture or recess in the latter, with a corresponding but limited cut in the piston wheel, together with the mode of protecting this aperture by the lateral overlap of the base or flanges of the piston.

Third, I claim the double oscillating valve, having opposite wings, nevertheless preserving the advantage of a single wing through the peculiar outline or use of a lesser cylindric surface between the wings on the side of the piston channel, reducing the cut in the cylinder for the passage of the piston to the least practical dimensions.

Fourth, I claim the introduction, in connection with a like cylindric surface, between the two wings on the opposite side of the valve, of a partition and separate chamber adjacent to the outer wing, for the purposes explained.

Fifth, I claim the arrangement in connection with the oscillating valve of the induction and eduction passages, such that the first opens just at the termination of the revolution of the valve athwart the piston channel, and the second by an aperture in the valve cap, uncovered by the opposite wing when the valve is in the position before stated, the purpose of the arrangement being to promote regularity of movement and the working of steam expansively.

I claim also the method of compensating for the less ready action of steam directly on the piston, by the use of the tappets, which are forced by the revolution of the valve, down the abrupt inclination of an exterior cam wheel.

Sixth, I claim separately the passage through the valve commencing near its periphery and terminating at the plane surface or valve seat as described, and as a combination for bringing the valve down across the piston channel, I claim the combined action, 1st, of the entering steam on its adjacent end of the valve. 2nd, of the steam passing through the valve, entering its induction wing, from the piston channel, and discharging from the eduction wing against the valve seat, and 3rd, taking away to any desirable extent, the resistance in the separate chamber behind the eduction wing substantially as described.

Seventh, I claim the method specified of balancing the pressure on the cylindrical cut-off valve, that is to say, by the removal of a suitable extent of surface diametrically opposite to the passages, or where there are two passages proximately situated, it is obvious a middle point may be used. These cuts or openings not being designed for steam passages, it is evident that their size or dimensions will be governed by totally distinct considerations.

Eighth, I claim governing the velocity of the engine by changing the position of the eccentric disk which governs the motion of the cut-off valves by the lever from the governor, said disks when thus changing having a transverse motion on the shaft.

Ninth, I claim the annular steam chamber formed in one of the heads opposite to the piston channel, with branches to the cut-off cylinders respectively, and a like chamber in the other head as a common receiving chamber for the eduction ports.

AIR HEATING FURNACE—Walter Bryant, (assignor to John B. Kelsey,) of Boston, Mass. : I claim the improvement in the construction of the radiator arranged over the dome of the fire pot, the same consisting in making its bottom a concavo-convex plate or arch, and with the concave sides disposed downwards and directly over the said dome, whereby the ascending heat from the top of the dome is retained in the concavity of said bottom, and not only made to warm to greater advantage, the air that rushes into the same, but to heat the radiator so as to improve the draught through the fire pot and supporting columns of the radiator.

BEARINGS FOR LOOSE PULLEYS—Wm. Campbell, (assignor to himself and E. W. Shippen) of West Philadelphia, Pa. : I claim a loose or suspension pulley or pulleys and hanger having an axis whereby a loose pulley may revolve independently of the shaft.

SECURING LAMPS IN LANTERNS—Wm. Porter of Williamsburgh, N. Y., (assignor to Jos. N. Howe, of Boston, Mass. :) I am aware that lanterns have been made in which the lamp is secured by a crooked expanding spring pendant from the body of the lamp, but in such lamps there has been no means of preventing the spillage of the oil as before stated, I therefore do not claim any such device.

But I claim the lantern constructed substantially as described.

ROLLER CATCH IN SELF-ACTING MULE—Mark R. Pearson, of Georgetown, Mass, (assignor to himself and Samuel Shaw, of Wareham, Mass. :) I claim the combining with the catch and the ratchet, the arm, and its friction brake or the equivalent therefor, the same being made to operate substantially as specified.

NOTE—Seven of our clients will notice the claims of their patents in the above list. Now is an excellent time to make application for patents, as the Office is not very much crowded at present, and it is not likely that much time would elapse before a decision could be obtained. Our circular o instruction is sent free of postage to all who wish information how to proceed.

Crawford's Great Work.

Crawford, the American sculptor, is now engaged at Rome, on the great work ordered by the United States government, to be placed in the eastern extremity of the Capitol extension. At present, according to a statement in a foreign journal, nothing is to be seen but huge portions of plaster models. It is to be of statuary marble. The central figure of the pediment represents America standing on a rock, against which the waves of the ocean are beating. She is attended by the eagle of the country ; while the sun rising at her feet indicates the light which accompanies the march of liberty. In one hand she holds the rewards of civic and military merit—laurel and oak wreaths—her left hand is extended toward the pioneer, for whom she asks the protection of the Almighty. The pioneer is the athletic figure of a backwoodsman clearing the forest. The Indian race and its extinction is explained by the adjoining group of the Iudian chief and family. The son of the chief is returning from the chase, with a collection of game slung on a spear over his shoulder. In the statue of the Indian chief, Mr. Crawford has endeavored to describe the despair and profound grief resulting from the conviction of the white man's triumph. The wife and infant of the chief complete this group of figures, while the grave being emblematic of the extinction of the Indian race, fills up this portion.

The opposite half of the pediment is devoted to the effects of liberty and civilization. The first figure on the right of America represents its soldier. He is clothed in the costume of the revolution, as being most suggestive of the country's struggle for independence ; his hand upon his sword indicates the readiness of the army to protect America from insult. By the soldier is placed a merchant sitting on the emblems of trade ; his right hand rests upon the globe, by which the extent of American commerce is symbolized. The anchor at his feet connects his figure with those of two boys advancing cheerfully to devote themselves to the service of their country. The anchor is easily understood to be the emblem of hope ; behind them sits a teacher instructing a youth. The mechanic completes the group. He rests upon the cog-wheel, without which machinery is useless. In his hands are the emblems of trade ; and at his feet are some sheaves of corn, expressive of fertility, activity, and abundance, in contradistinction to the grave at the corresponding corner. It will be a work worthy of our conntry and its great artist.

A Change in English Jurisprudence.

A change in the British law with respect to trials will commence from and after the 24th October, when the common law procedure act will come into operation. It is provided that a judge, by consent, may try questions of fact without a jury, provided the court upon a rule to show cause, or a judge, shall think fit to allow such trial, and the verdict of the judge is to be of the same effect as the verdict of a jury, save that it shall not be questioned upon the ground of being against the weight of evidence, and the proceedings upon and after such trial, as to the power of the court or judge, the evidence and otherwise, shall be the same as in the case of tria by jury.

Making Cheese.

Having received a letter from a correspondent respecting the best methods of making cheese, we present the following as useful information for him and others.

The "Chedder Cheese" of Wiltshire, Eng., is excellent in quality. It is made of new milk fresh from the cows, and is therefore also called "one meal cheese." It has been found that the milk of grass-fed cows is the richest, hence the best quality of cheese can only be made during those periods of the year when cattle are fed on the richest pasturage. The milk warm from the cow is generally colored with some annato, about one ounce for each expected hundred-weight of cheese, and the rennet for curdling is then added. About one-third of a pint of rennet is added for every fifty gallons of milk.—As soon as the milk is curdled, the whey is strained off, the curd cut very fine and placed in a proper cheese mold or hoop, where it is pressed gently for two hours, then turned and pressed again for eight hours, when it is turned again, rubbed on both sides with salt, then pressed for twelve or fourteen hours, and finally dried on a board, being turned every day. Until the cheese is perfectly dry it is best to keep it in a cool dry place. The temperature of the milk room or dairy, should never be above 50°. The sides of large cheeses are pierced with iron skivers, to allow the whey to escape during pressure, which should be put on gradually and never severe. Any good press will answer. The curd, it will be understood, is placed in a clean white cotton cloth for pressing. The rennet used for curdling the milk for cheese is made of a calf's stomach washed clean and thoroughly salted, inside and out. In two or three days, the salt left on it having run, it is hung to drain for two days, then re-salted and put into a stone-ware vessel, and covered with a piece of paper pricked with pin holes. It should now be suffered to stand for two or three months before it is further treated for immediate use. A gallon of water, into which a handful of sweetbrier leaves is placed, is boiled with three handsful of salt for fifteen minutes, and then left to cool. Into this is stirred the whole of the above prepared calf's stomach, a lemon and a few cloves. A scum gathers on the top of this which must be skimmed off, and the clear is fit for use in a few days.

A very excellent cheeese is made by taking the evening meal of milk, warming and mixing it with the morning's warm milkings, adding the rennet, and proceeding as before described. This kind of cheese is named "The Dunlop." No coloring is used, and there is honesty in this, as annatto used is for the purpose of deception. All cheese curd is salted to the proper taste, or else it would soon ferment and decay. Cheese can be made of sweet and skim milk mixed, but the quality is very poor, and it is worse still when made altogether of skim milk. The great secret in making good cheese is to have good rich sweet milk, clean vessels, a proper cool and dry dairy, good rennet, pressing gradually, and not too severe, until all the whey is expelled.

The famous "Stilton Cheese" is made by adding the cream of the evening's to the morning's milk, then adding the rennet. The curd is not broken, but put into a sieve to drain, and pressed very gently, after which it is put into the cheese ring, pressed lightly and put on a board in the dairy to dry.

© 1854 SCIENTIFIC AMERICAN, INC.

TO CORRESPONDENTS.

A. N. B., of La.—J. Bogardus, of this city, manufactures grinding mills for the purpose you describe; communicate with him by letter, and state the size, &c., you want. The only secret in the manufacture, is in the adulteration of the pure article with turmeric. We would not advise any person to do this.

D. G., of Mass.—Your article is not exactly suitable. We cannot agree with you in all the opinions which you have expressed.

S. H. & L., of Pa.—You have not been a careful reader of the Sci. Am., or the fact of a paper-feeding machine acting upon the principle of suction, must have been well known to you. A number of applications for patents have been made upon machines on this principle within the last year.

W. D. M., of Ky.—Your plan for conveying power by compressed air, through a long tube, has been proposed and tried before, but it did not work well.

A. F., of Vt.—Your improvement in bedsteads is a good one, and so far as we know, it is patentable.

S., of Mich.—There does not appear to be sufficient novelty in your improved syringe to warrant an application for a patent. Glass syringes are now made in substantially the same manner; the coupling is also common for other purposes, such as hose pipe, etc.

J. W. A., of N. S.—We cannot give an opinion in regard to your invention without a chance to examine a sketch and description of it, unless you can send us a model, which we prefer in all cases.

J. D. B., of Ala.—We are much pleased with your improvement in level squares, and think it can be patented.

J. G., of R. I.—We understood your first inquiry perfectly well. The very plan you propose for sounding steam whistles as an alarm, is the only way known to us, and you could no more get a patent upon it than you could for a peculiar pucker of the mouth in whistling "Yankee Doodle."

A. W., of Ill.—The very first sentence in your letter is false, and that being a fact we have not taken the trouble to read any other portion of it. A perpetual motion you have not invented nor never will, and we advise you to drop the jack-o'lantern scheme at once, and turn your mind to some branch of mechanics which i more sensible.

J. B. W., of Mich.—The "Metal Worker's Assistant," published by H. C. Baird, Philadelphia, is the work you want.

J. S., of Ky.—Yours has been received, and will meet with attention.

W. & B., of Baltimore—Yours has been received.

E. A. H., of Ill.—Your letters patent came duly to hand, and the engravings are being prepared agreeable to your request. The cost of the engravings will be $12, which amount you will please remit.

S. P., Jr., of Mass.—Your proposition to use india rubber type for printing, etc., is not a new idea.

D. C. M., of Wis.—A steam engine made to work on the re-action principle, is not an idea of to-day. Hero's engine, invented 130 years before Christ, operated on the re-action principle, like the well-known Barker's water mill.

M. N. B.. of Md.—We do not answer letters not properly signed by the writer. If you will furnish us with your name and a sketch and description of your press, we will answer your inquiry. We cannot file letters for preservation without the writer's name.

C. G., of Texas—The manufacture of hyposulphite of soda, is very intricate, and it will be far better for you to purchase it.

Money received on account of Patent Office business for the week ending Saturday, Oct. 28:—

A. K. G., of—, $50; J. L., of N. Y., $25; P. H., of Mass. $30; W. W., of N. Y., $40; G. F. A., of Wis., $10; E. B., of—, $75; S. T. S., of Mass., $50; J. P., of N. J., $30; C. E. R., of N. Y., $15; J. M., Jr., of N. Y., $10; W. G., of N. Y., $100; E. G. O., of N. Y., $30; J. H. B., of N. Y. $30; A. F., of N. Y., $25; J. S., of N. Y., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 28:—

J. J., D., of Ct.; W. H. C., of Ct.; J. J. C., of N. Y.; C. E. R., of N. Y.; M. F., of N. Y.; J. L. of N. Y.; J. M. Jr., of N. Y.; M. G., of N. Y.; C. T., of N. Y.; A. F., of N. Y.

Terms of Advertising.

4 lines, for each insertion,	$1,00
8 " " "	2,00
12 " " "	3,00
16 " " "	4,00

Advertisements exceeding 16 lines cannot be admitted, neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—MESSRS. MUNN & CO., Publishers and Proprietors of the Scientific American, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britain, France, Belgium, Holland, Austria, Spain, etc., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter intrusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of attending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of making an application, if deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York; London, No. 16 Castle st.; Paris, No. 29 Boulevard t. Martin; Brussels, No. 6 Rue D'Or.

THE EXCLUSIVE RIGHT TO MAKE AND sell Gale's Eagle Feed Cutters, for cutting all kinds of fodder, particularly cornstalks, by hand power, is offered for sale for the Western States, and fifteen counties in Western New York. Nourse & Co., of Boston, Mass., manufacture and sell for the balance of the United States. Retail price in Boston for best size, $16. Parties wishing to buy rights can get the refusal of the territory wanted, long enough to send to Nourse & Co. to get a machine, and cut, if they choose, a hundred tuns of feed with it; by that time it is fair to presume they can form an intelligent opinion as to its value. The patent is a good one, and cannot be dodged by pirates.—Letters in reference to rights should be sent direct to WARREN GALE, No. 4 North Market st., Boston, Mass. 8 4

AMERICAN STONE DRESSING MACHINE—The subscribers are now prepared to sell rights to use the above machine, patented August 8th, 1854. One is now on exhibition at Nos. 35 and 37 Ganesvoort street, in the city of New York, and all persons interested in the business are invited to visit it, as the machine itself will give the best idea of its own capacity. Being very simple in its construction, and adapted to a great variety of purposes, requiring but little power, saving an immense amount of labor, and producing surfaces far more perfect than can be produced by hand, it is believed that no one carrying on the business of working stone, of whatever nature, can long afford to be without one.
CAPWELL & PORTER,
8 6 New York City.

TO MACHINISTS, RAILROAD COMPANIES, and others—SHRIVER & BROTHERS, Cumberland, Md., have now on hand, for sale, Engine Lathes, 8 feet bed, swing 19 inches; ditto, 10 feet bed, swing 24 inches; Hand Lathes, 8 feet bed, swing 18 inches; Planing Machines, plane 6 feet long and 33 inches wide. We are also manufacturing a variety of other sizes and descriptions of machinists' tools, all of which are built in the best style, and warranted to give perfect satisfaction.—First premiums have been awarded us by the Maryland Institute, Baltimore; and the Ohio Mechanic's Institute, Cincinnati, O., at their Exhibitions this year. 8 4

TO INVENTORS—The undersigned, having some capital to spare, would be willing to invest in any useful patented or unpatented invention which may be made profitable by energy and means. Address with description of invention, J. E. W., Box 146, Brooklyn P. O., New York. 1*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill Irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
8 1y* LOGAN VAIL & CO., 9 Gold st., N. Y.

DRAUGHT BOARDS—Patent, 23 by 29 inches.—Ready sales their best recommendation. Cheapest instruments in use. Complete for $10. Sent by Express. Direct (post paid) to CHAMBERLIN & Co., Pittsfield, Mass. 8 5t*

PRICES GREATLY REDUCED—JOHN PARSHLEY, New Haven, Conn., will have 12 of his No. 2 Iron Planers finished by the 1st of January, 1855, to plane 12 feet long, 36 inches wide and 30 inches high, with down and angle feed in the cross-head, they weigh about 8,000 lbs, and are in workmanship and design equal to any planers built in New England. Price $5 50 cents cash. Boxing and Shipping extra. For cuts address as above. 8 tf

TO MACHINISTS AND MANUFACTURERS of House Furnishing Articles—For sale, several Patents of Recent Inventions of small articles, which may be introduced readily with small outlay of capital.—Terms very easy, as the present proprietors are occupied with other business. Apply at 258 Pearl Street, New York. 1*

MATHEMATICAL AND OPTICAL INSTRUments—The undersigned has just opened a new and extensive assortment of the above Instruments, his own selection made in Europe. It should also be kept in mind that he has the exclusive agency for the sale of the justly celebrated Swiss Drawing Instruments. Transits, Levels, and Surveyors Compasses made to order.
C. T. AMSLER,
8 12 eow 211 Chesnut st., Philadelphia, Pa.

PORTABLE STEAM ENGINES.—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2½ horse can be seen in store. it occupies a space 5 by 3 feet, weighs 1500 lbs. price $240; other sizes in proportion.
8 e3w

LIFE ILLUSTRATED—A new first-class Weekly Newspaper, devoted to News, Literature, Science, and the Arts, to Entertainment. Improvement, and Progress. To embrace every human interest, and to supply aliment to every mental faculty, is its aim.—Bound to no theory or party, but seeking the highest interests of all; advocating whatever tends to promote the physical, intellectual and moral good of man, but exposing evils and their causes, it shall merit, and, we hope, command, a world-wide circulation and influence. It will point out all available means of profit and comfort, and especially expound the laws of Life and Right, including the normal exercise of all our powers, besides encouraging in all a spirit of hope, manliness, and self-reliance. A large folio sheet of excellent paper, with twenty-eight columns of new type, printed in a superior manner, at $2 a-year. Published by
7 4 FOWLERS & WELLS, 308 Broadway, N. Y.

100 HORSE POWER ENGINE, $2800; four 18 feet Screw Cutting Engine Lathes, $400 each; 2 four-horse, and 2 eight-horse power Engines, by J. W. HOOKER, Buffalo Machinery Depot, Terrace st., and 36 Lloyd st., Buffalo, N. Y. H. C. BROWN, Supt.
7 3

TO EXHIBITORS—All applications for space to exhibit in the French Palace of Industry, in 1855, should be addressed to the undersigned before the 15th of November next.
S. H. WALES,
Commissioner for the State of New York.
Office Scientific American, New York City.

DICTIONNAIRE TECHNOLOGIQUE Francais-Anglais-Allemand, redige d'apres les meilleurs ouvrages speciaux des trois langues, donnant avec leurs diverses acceptions et applications, tous les termes techniques employes dans les arts industriels et dans la mecanique, la physique et la chimie manufacturieres; suivi d'un tableau comparatif des monnaies, poids et mesures, Francais, Anglais, et Allemands. Par MM. Tolhausen et Gardissal. New York, chez MUNN et CIE, 128 Fulton Street. Prix, $1,31

MECHANICS' ROOMS, WITH STEAM POWer, to Rent, in Cleveland, Ohio—The undersigned has just erected a large three story brick building, tin roofed, two hundred feet long, and one hundred feet wide, and to be furnished with two large steam engines, expressly designed for the growing mechanical wants of this vicinity. The apartments will be divided and power rented, to suit the wants of tenants. The location is central, conspicuous, and convenient to canal, railroads and lake shipping. Few mechanics or manufacturers are aware of the vast number of articles which are used in immense quantities in the Western States, which have been hitherto wholly manufactured in the Eastern States and which may be made here to better advantage. The premises will be ready for occupation early this fall. For further information apply to J. L. HEWITT, Cleveland, Ohio. 5 5

ESTABLISHED IN 1796—Philosophical, Mathematical, and Optical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut st., Philadelphia. 3 6*

UNITED STATES PATENT OFFICE,
Washington, September 28, 1854.

ON THE PETITION of Caroline S. Williams, administratrix of Thos. R. Williams, deceased, of Moreau Station, New York, praying for the extension of a patent granted to the said Thos. R. Williams, on the 14th of December, 1840, for an improvement in the "machinery for forming bats for felting," &c., for seven years from the expiration of said patent, which takes place on the 14th day of December, 1854:

It is ordered that the said petition be heard at the Patent Office on Monday, the 27th of November next, at 12 o'clock M., and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

The testimony in the case will be closed on the 17th of November; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Penn.; Scientific American, N. Y.; Post, Boston, Mass., and Daily Courier, Buffalo, N. Y., once a week for three successive weeks previous to the 27th of November next, the day of hearing.
CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 6 3

UNITED STATES PATENT OFFICE,
Washington, September 28, 1854.

ON THE PETITION of Caroline S. Williams, administratrix of Thomas R. Williams, deceased, of Moreau Station, New York, praying for the extension of a patent granted to the said Thomas R. Williams, on the 14th day of December, 1840, for an improvement in "machinery for hardening bats in felting," &c., for seven years from the expiration of said patent, which takes place on the 14th day of December, 1854:

It is ordered that the said petition be heard at the Patent Office on Monday the 27th day of November next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 17th day of November 1854; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Penn.; Scientific American, New York; and Post, Boston, Mass., and Daily Courier, Buffalo, N. Y., once a week for three successive weeks previous to the 27th day of November next, the day of hearing.
CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 6 3

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 1 tf

RENSSELEAR POLYTECHNIC INSTITUTE—Designed for the education of Architects and Civil Engineers, including Railway, Hydraulic, Topographical, and Mining Engineers. For copies of the Annual Register, giving full information respecting the Institute, apply to B. FRANKLIN GREEN, Director, etc., R. P. I., Troy, N. Y. 1 8*

WOODWORTH'S PATENT Planing, Tonguing Grooving Machines—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER,
4 6* 57 Pearl st., Brooklyn, L. I.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2: eight copies $5: twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

TO CAPITALISTS AND MANUFACTURERS —The New York Cast Steel Works, corner Second Avenue and 47th street, are for sale or to let, affording a desirable opportunity for those desiring to engage in the business. Address or call on DANIEL ADEE, Agent, 107 Fulton st., N. Y.

Steam Engines for sale, cheap for cash, one of six-horse power, and one of two-horse power. Apply as above. 6 4*

COTTON AND WOOLEN MANUFACTURers' Supplies of every description: also machinery of all kinds; wrought-iron Tackle Blocks of all sizes; Leather Belting superior oak tanned; Bolts, Nuts, and Washers of all sizes on the most reasonable terms.
6 13* SAML. B. LEACH, 51 Broad st.

GREAT AUCTION SALE OF MACHINISTS TOOLS—JOHN PARSHLEY will sell at Auction, on Wednesday the 22d day of November, 1854, at his shop, in New Haven Conn., 75 Engine Lathes of all sizes, 12 Bolt Cutting Machines, a number of Drill Presses and 12 Iron Planers, all of which tools are built in the best workman-like manner, and can be seen on or before the day of sale. Circulars, giving all required information, and cuts of tools, will be sent to all post paid applicants. 5 8

GLOVER'S DOUBLE-POINTED SPRING-CASE P N—Patented August, 1854. (See engravings in the Scientific American, No. 4, Vol. 10.) Territory for sale by W. R. GLOVER, Glasgow, Ky. 5 6*

WARREN'S TURBINE WATER WHEEL.—Manufactured at the Wareham Manufacturing Company's Works, Wareham, Mass. These Wheels are now in extensive use in New England, and are constructed in the best possible form for using water with the greatest economy. They are equally adapted to all manufacturing purposes, and under all heads, and not affected by back-water. For particulars, certificates, &c., address JACKSON WARREN, Wareham, Mass. 5 5*

I AM PREPARED TO SELL Lyon's Copper Lightning Rod, (illustrated in No. 5 present volume of the Sci. Am.,) for the States of New York, Pennsylvania, and Ohio; price per foot, all ready to put up, including glass insulators and electroplated or gilded points, sixteen cents; any party buying several hundred feet of us, at the above price, will be entitled to the exclusive right to sell the rod in the town where such rod is used, also a liberal deduction on all rod purchased thereafter. All orders for rod or otherwise must be sent directly to the subscriber, where the rod will be boxed and delivered. J. P. LINDSAY, No. 4 North Market street, Boston, Mass. 5 4

WIRE ROPE OF IRON AND COPPER—For Mines, Inclined Planes, Hoisting and Steering purposes, Stays or Braces, &c., &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 5 3m

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
T. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 6tf

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

1854—MICHIGAN CENTRAL R.R. LINE—D.W. WHITING, Freight Agent, and also General Forwarder, having been a practical machinist, is prepared with skill and implements to handle and ship by any line, all kinds of machinery and manufacturers' wares. Mark plainly, care D.W. WHITING, Buffalo, N. Y. 7tf

STEAM ENGINES AND BOILERS FOR SALE.—One new eight-horse engine. One second hand five-horse engine. Tubular boilers, second-hand, suitable for same. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 4tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 1 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

JOHN PARSHLEY. manufaeturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., is now finishing a lot of iron planers to plane 8 5-12 feet long, 30 in. wide, and 26 in. high, having the down and angle feed in the cross head, the planers all of the best quality, and prices extremely low for the quality. Cuts with full particulars can be had by addressing as above, post-paid. 1 tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 1 tf

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

THE MERIDEN MACHINE CO.—Successors to Oliver Snow & Co., West Meriden, Conn. Have on hand and make to order a great varlety of Lathes, Planers, and other machinists tools of superior quality and finish. Cuts of these tools may be had on application as above, with full particulars. They also manufacture Farnam's Patent Lift and Force Pumps of all sizes. For mines, factories, railroad stations, &c. Having a large and extensive variety of patterns, the accumulation of over 20 years business, and extensive facilities for making light or heavy castings, are prepared to contract for any kind of mill work, mining machinery, &c. New York Office and Sample Room, No. 15 Gold, cor. Platt st. 1 3m*

PHŒNIX IRON WORKS—GEO. S. LINCOLN & CO., Hartford, Conn. Manufacturers of Machinists Tools. Are constantly making and have now on hand an assortment of Screw Cutting Engine Lathes, viz.:—No. 1. bed 10 ft., long, swing 20 inch. No. 2. bed 14 ft. long, swing 30 inches. No. 3. bed 16 1-2 ft long, swing 40 inches, with improved bed, cast steel spindles, feed motion carried by a screw, toothed rack for moving tool rest by hand, improved gibb rest and tool stock, stationary and traveling back rest; also manufacturers of Lathes for turning Locomotive Driving Wheels, small Power Planers, Upright Drills, Power Punching Presses, &c. Designs of the tools with further descriptions, will be sent by addressing as above. 1 3m*

ENGINEERS, DRAUGHTSMEN, AND MECHAnics supplied with Drawing Instruments, separate and in cases, Parallel Rules, Scales, Dividers, Metallic Tape Measures, Linen do., Chains, Surveyors' Compasses, Levels and Transits, and a large assortment of Optical and Mathematical Instruments, wholesale and retail by JAS. W. QUEEN, of the late firm of McAllister & Co., 264 Chesnut st., Philadelphia. Illustrated catalogues gratis by mail. 3 3m*

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 9, 1854. TAFT & GLEASON. 50 1y*

NORCROSS' ROTARY PLANING MACHINE—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed report of the case with the opinion of the Court can be had of Mr. Norcross, at Lowell, or 27 State street, Boston. 36 6m*

MACHINIST'S TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools 50 6m*

© 1854 SCIENTIFIC AMERICAN, INC.

Science and Art.

Cheap Microscope.

There is a man who sometimes stands in Leicester square, London, who sells microscopes at one penny each. They are made of a common pill-box; the bottom taken out, and a piece of window glass substituted; a small hole is bored in the lid, and therein is placed a lens, the whole apparatus being painted black. Upon looking through one of these microscopes, I was surprised to find hundreds of creatures, apparently the size of earthworms, swimming about in all directions yet on the object glass nothing could be seen but the small speck of flour and water, conveyed there on the end of a lucifer match, from a common inkstand, which was nearly full of this vivified paste. I bought several of these microscopes, determined to find out how all this could be done for a penny. An eminent microscopist examined them, and found that the magnifying power was 20 diameter. The cost of a lens made of glass of such power would be from 3s. to 4s. How, then, could the whole apparatus be made for a penny? A penknife revealed the mystery. The pill-box was cut in two, and then it appeared that the lens was made of Canada balsam, a transparent gum. The balsam had been very cleverly dropped into the eye-hole of the pill-box. It then assumed the proper size and transparency of a well-ground lens. Our ingenious lens maker informed me that he had been selling these microscopes for fifteen years, and that he and his family conjointly made them. One child cut the pill-box, another the cap, another put them together, his wife painted them black, and he made the lens.—[Dicken's Household Words.

Preserving Milk.

The Abbe Moigno, of Paris, describes a mode of preserving milk, by which he has kept the article sweet for six months at a time. He does not tell us first how to get the pure article, but once obtained, this is his plan:

"The vessels used were cylindrical iron bottles, each fitted with a leaden tube at the top. The bottle and tube having been filled to the boiling point with milk so as to exclude the atmospheric air, the latter was pinched a little below the top, so as to close it completely. It was then cut off at the part pinched, and the bottle and what part of the tube remained being entirely free of air, no decomposing action could possibly ensue."

On the plans previously adopted, it had always been found inevitable to enclose a little air, so that it was necessary to expose it to a high temperature, in order that the oxygen in that bubble might be absorbed by the organic substance. The plan of Gail Borden, Jr., of Texas, (inventor of the Meat Biscuit,) for preserving milk, we consider far superior to this. It consists in evaporating the water in the milk, in a pan excluded from the atmosphere, and using a small quantity of sugar as a preservative. By this plan pure solid milk can be obtained, which can be carried about in very small bulk, from one end of the world to the other.

A New Light.

A correspondent hands us the following:

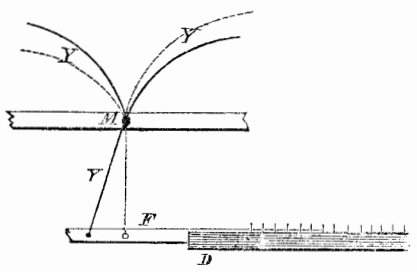
"An important discovery, after five years incessant labor, has lately been completed by a gentleman residing near New York, which is expected to cause a great revolution in the prices of coal and gas. It is an entire new light, white in color, resembling the light of day. It will be cheap and fit for all purposes that gas is now used. One great advantage in the invention is its applicability to the production of heat for domestic purposes of every kind. It will be able to be obtained at such a price as will be within the means of every person. It is called "Arthur's Washington Light." It will supersede the necessity of laying down gas piping in streets and houses, as it is portable, and requires no piping of any kind, and can be carried without inconvenience from one room to another. The lamp is not easily put out of repair, and requires no care after once lighting. It is perfectly safe, and not liable to the accidents of other lamps. The inventor is most sanguine as to its applicability to all locomotive engines, instead of coal or other fuel."—[N. Y. Tribune.

[One thing is very *clear*; viz., this light is very *dark*. We are of the opinion that this "Arthur's Washington Light" will prove to be something like the New York Washington Monument"—a work of imagination.

History of Reaping Machines.—No. 6.

Following the last ingenious but complex mechanical contrivance we have one that nearly reaches the other extreme of simplicity. It was the invention of Henry Ogle, schoolmaster, of Rennington, in 1822.

FIG. 22.

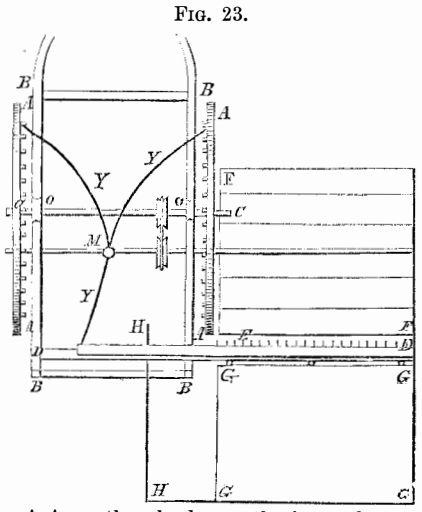


The annexed figure, 22, illustrates the cutting arrangement, the essential feature of this machine.

D is is a frame of wood or iron with teeth projecting about three inches; E is the knife which acts upon the bar, D; Y Y Y is an instrument fixed on a center upon a frame at M, turns upon it and acts in teeth on the inner side of two main wheels, one end of the instrument catching alternately with the other in the teeth or cogs, thus keeping the knife sliding in and out, with a very quick motion.

Figure 23 is an underside plan view of this machine, showing that it had the reel which is now employed on all reapers, and it also shows the peculiar manner of giving the cutter a reciprocating motion from side to side.

FIG. 23.



A A are the wheels, on the inner face of which are pins set at certain distances apart, the space on one wheel being opposite to the pin on the other wheel. The arms, Y Y, are made of tough wood—wood springs—and press against the face of the wheels. The inner end of Y is a single arm attached to the cutter blade. It will therefore be evident that as the wheels revolve, the pins on their inner faces will so actuate the spring arms as to give the cutter, E, a motion alternately from side to side; C is the axle of the wheels working the bearings, O O, and M is the spindle or shaft of the reel, F F, which is set higher in the frame, B B, than the wheel axle, and receives a rotary motion by a band and pulley.

The cut grain falls on the platform, G G, and the vibration of the arms which operate the cutter, is shown by dotted lines, figure 22. A perspective view of this machine was published in the London *Mechanics' Magazine*, and it was therefore known to the public for more than thirty years.

From a trial of this machine it was estimated that it would cut fourteen acres per day with ease, but Mr. Ogle, schoolmaster, says, "some working people at last threatened to kill Mr. Brown (the maker of the machine) if he persevered any further in it, and it has never been more tried,"

Up to this period, notwithstanding the ingenuity which had been expended upon reaping machines, none had been produced which has stood the test of time, or which embraced all the principles that have been incorporated into the effective reapers of the present day, but in 1826 the Rev. Patrick Bell, of Scotland, invented an apparatus for reaping grain, which is the oldest known machine that is still in use. This may be said to be the advent of successful reaping by machinery, and in our next we shall give full illustrations of his machine.

A Valuable Mineral.

Gold, silver, and precious stones are held to be the most valuable minerals in the world, but they are not so essentially. Coal and iron are really more valuable than diamonds or gold, and to these we must add another mineral which is the most valuable ever discovered. Our constant readers will remember that we published the opinions of very celebrated chemists on page 10, last volume SCIENTIFIC AMERICAN, given in a trial at law at Edinburgh, respecting what was called Torbanehill Gas Coal, and how some of those chemists (Brande, Rose, Ansted, &c.) asserted it was not coal but a bituminous shale; while others (Johnson, Fyfe, Hoffman, Maclagan, &c.) asserted it was coal—only a superior quality of cannel. The jury decided that it was a coal, but it is still a disputed question with the scientific men of Europe, the German chemists generally inclining to the anti-coal side of the question, while the British chemists generally stand on the other side. But be it coal or shale the mineral has no equal in the world for light-producing qualities. By the *Edinburgh Witness*, Hugh Miller's paper, we learn that at a law suit lately prosecuted in London, one of the parties, James Young, of Bathgate, on being sworn deposed, that "he manufactured and sold at the rate of 8000 gallons a week" of the Paraffine oil, which is procured from the Torbanehill new mineral. 8000 gallons a week are 416,000 gallons a year, and accordingly Mr. Young's counsel, Mr. Bramwell, stated that his client sold (in round numbers) "400,000 gallons of this oil yearly," Mr. Bramwell adding, "at 5s. per gallon." That is, Mr. Young stated, while his counsel repeated the statement, that from the chemical works near Bathgate, which prepare the Paraffine oil procured from the Torbanehill mineral, there are sold of that valuable oil £100,000 (nearly $500,000) worth yearly, and it is to be borne in mind that the greater portion of this very large yearly sum is *clear profit*. It was also added, that Mr. Young was only one of many parties in Europe who ordered and obtained this mineral for making oil, and producing gas. This mineral is only obtained from a small district in Scotland, and from the foregoing, some idea of its immense value, in a commercial point of view, may be obtained.

We invite the attention of our geologists and mineralogists to search for minerals of the same character and quality in our own country. We have no doubt but they exist in some of our extensive and rich coal basins, especially in the neighborhood of the cannel coal beds in Virginia, Pennsylvania, Kentucky, Indiana, and Missouri.

The "Electrical Motor" Destroyed by a Mob.

A letter from John M. Spear, published in the *Spiritual Telegraph*, contains the following information concerning the destruction of the machine built at Lynn, which was represented by its friends to be endowed with life. and was styled by some persons a "new Savior:"—

"From the hour that it became publicly known that the Association of Electricisers had undertaken to introduce to the inhabitants of this earth a new motive power, the press and the pulpit have assailed, ridiculed, and misrepresented it, until a public sentiment has been generated which encouraged the mob to assail and destroy it. It was moved, as you know, to Randolph, N. Y., that it might have the advantages of that lofty electrical position. A temporary building was erected to shelter it. Into this, under the cover of the night, the mob entered, tore out the heart of the mechanism, trampled beneath their feet, and scattered it to the four winds."

[We copy the above from an exchange, not from the *Spiritual Telegraph*, which we have not seen. We do not believe a word respecting a mob breaking into the building and destroying the spiritual machine. We are of the opinion that it was broken by the crafty author of it, whose schemes had come to the exact point of exposing his ridiculous pretensions.

LITERARY NOTICES.

STATISTICS OF COAL—A new edition of "Taylor's Statistics of Coal," is published by J. W. Moore, of Philadelphia, to whom we are indebted and grateful for a copy. When the first edition was published a few years ago, its thorough scientific character and accurate information, at once brought new laurels to its able author. The *Edinburgh Review* passed a high eulogium upon it, and with no part of it have we ever heard a fault mentioned. This edition is revised and brought down to 1854, by Prof. S. S. Haldeman, the venerable author having departed this life in 1851. It is chiefly devoted to the coal and iron natural resources of America; and no American, we assert, can have a proper idea, of the vast internal resources of his country, and be ignorant of the contents of this book. No library, public or private, can be complete without a copy of it. It is for sale by John Wiley, of this city.

WEBSTER'S DICTIONARY UNABRIDGED.—Who does not thank Noah Webster for this stupendous literary work—the greatest ever performed by one man? It has met with an extensive sale, and should be possessed by every family, and introduced into every school in our country. It is a complete *thesaurus*—a treasure of knowledge: there is scarcely a bookseller who does not keep it for sale, and a library is as incomplete without it, as the solar system would be without the sun. The publishers, Messrs. Merriam, of Springfield, Mass., have performed the task of publishing this great work with much care and attention.

THE BIBLIOTHECA SACRA—For this month, published by Warren F. Draper, Andover, Mass., has a continuation of Rev. J. L. Porter's tour from Damascus to Baalbeck and Hums. The author is a missionary at Damascus, and gives us a most interesting narrative. A paper on Special Divine Interpositions in Nature, by Professor Hitchcock, crushes all the scientific arguments of the materialists to powder.

BLACKWOOD'S MAGAZINE—The American edition of the last number of this old magazine, has been promptly issued by its enterprising publishers, Messrs. Leonard Scott, & Co., this City. The leading article reviews the speculations of recent writers on the question of the planets being inhabited, in which the author expresses the same opinions as ourselves, in a recent article on this subject. The concluding article is on Spain and Cuba, and should be read by every American; it recommends Spain to sell Cuba to the United States.

PUTNAM'S MONTHLY—For November, is before us, containing, as usual, a goodly number of sterling articles. The leading one is on the "First Discoverers of America," in which the honor of the discovery of our continent is awarded to the Northmen. The interesting biography of Stedingk is continued; and there is a very able essay on the causes and consequences of the Russian War. G. P. Putnam & Co., Publishers, Park Place.

THE KNICKERBOCKER—For November, is rich and rosy with poetry, anecdote, and story. Clark, the mirth-inspiring Editor, has a choice table filled with all sorts of literary knick-knacks for driving "dull care away." Published by S. Hueston, Broadway.

MECHANICS

Inventors, and Manufacturers

The Tenth Volume of the SCIENTIFIC AMERICAN commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES,—with Editorial comments explaining their application notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PATENT CLAIMS; these Claims are published in the Scientific American IN ADVANCE OF ALL OTHER PAPERS.

The CONTRIBUTORS to the Scientific American are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and PEOPLE IN EVERY PROFESSION IN LIFE, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a continual source of knowledge, the experience of which is beyond pecuniary estimate.

The SCIENTIFIC AMERICAN is published once a week; every number contains eight large quarto pages, forming annually a complete and splendid volume, illustrated with SEVERAL HUNDRED ORIGINAL ENGRAVINGS.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies for Six Months,	$8
Ten Copies, for Twelve Months	$15
Fifteen Copies for Twelve Months	$22
Twenty Copies for Twelve Months	$28

Southern, Western, and Canada Money taken at par for Subscriptions, or Post Office Stamps taken at their par value. Letters should be directed (post-paid) to

MUNN & CO.
128 Fulton street, New York.

☞ For LIST OF PRIZES see Editorial page.

© 1854 SCIENTIFIC AMERICAN, INC.